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2012 EDITION



EuroHeart II
BUILDING
ACTION
on HEART DISEASE
and STROKE

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European Cardiovascular Disease Statistics

2012 edition

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About the Publishers

The European Heart Network (EHN) is a Brussels-based alliance of heart foundations and likeminded non-governmental organisations throughout Europe with member organisations in 26 countries. The mission of the European Heart Network is to play a leading role in the prevention and reduction of cardiovascular diseases, in particular heart disease and stroke, through advocacy, networking, education and patient support, so that they are no longer a major cause of premature death and disability throughout Europe.

The European Society of Cardiology (ESC) represents over 70,000 cardiology professionals across Europe and the Mediterranean. Its mission is “to reduce the burden of Cardiovascular Disease in Europe”. It comprises 6 Associations, 5 Councils, 18 Working Groups covering a wide variety of sub-specialities as well as 55 National Cardiac Societies in European and Mediterranean countries, all involved in the advancement of knowledge of diseases of the heart and circulation. It also organises the ESC Congress, the largest cardiovascular medical meeting worldwide and edits and publishes nine of the world’s leading journals on cardiology.

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Contents

European Cardiovascular Disease Statistics 2012

Acknowledgements	2
Foreword	7
Summary	8
Introduction	9
Chapter 1 - Mortality	10
Table 1.1 Total numbers of deaths by cause and sex, latest available year, Europe	14
Figure 1.1a Deaths by cause, men, latest available year, Europe	16
Figure 1.1b Deaths by cause, women, latest available year, Europe	16
Figure 1.1c Deaths by cause, men, latest available year, EU	17
Figure 1.1d Deaths by cause, women, latest available year, EU	17
Table 1.2 Deaths under 75 by cause and sex, latest available year, Europe	18
Figure 1.2a Deaths under 75 by cause, men, latest available year, Europe	20
Figure 1.2b Deaths under 75 by cause, women, latest available year, Europe	20
Figure 1.2c Deaths under 75 by cause, men, latest available year, EU	21
Figure 1.2d Deaths under 75 by cause, women, latest available year, EU	21
Table 1.3 Deaths under 65 by cause and sex, latest available year, Europe	22
Figure 1.3a Deaths under 65 by cause, men, latest available year, Europe	24
Figure 1.3b Deaths under 65 by cause, women, latest available year, Europe	24
Figure 1.3c Deaths under 65 by cause, men, latest available year, EU	25
Figure 1.3d Deaths under 65 by cause, women, latest available year, EU	25
Table 1.4 Age-standardized death rates from CHD, adults aged under 65, by sex, 1980 to 2010, Europe.....	26
Figure 1.4a Age-standardized death rates from CHD, men aged under 65, latest available year, Europe	28
Figure 1.4b Age-standardized death rates from CHD, women aged under 65, latest available year, Europe	28
Figure 1.4c Age-standardized death rates from CHD, men aged under 65, 1980 to 2010, selected countries.....	29
Figure 1.4d Age-standardized death rates from CHD, women aged under 65, 1980 to 2010, selected countries.....	29
Table 1.5 Age-standardized death rates from stroke, adults aged under 65, by sex, 1980 to 2010, Europe.....	30
Figure 1.5a Age-standardized death rates from stroke, men aged under 65, latest available year, Europe	32
Figure 1.5b Age-standardized death rates from stroke, women aged under 65, latest available year, Europe	32
Figure 1.5c Age-standardized death rates from stroke, men aged under 65, 1975 to 2010, selected countries.....	33
Figure 1.5d Age-standardized death rates from stroke, women aged under 65, 1975 to 2010, selected countries.....	33
Table 1.6 Potential years of life lost by cause and sex, latest available year, Europe	34
Chapter 2 - Morbidity	35
Table 2.1 Disability-adjusted life years (DALYs) by cause, 2002, WHO Mortality Sub-Region, EU and Europe	37
Figure 2.1a Disability-adjusted life years lost by cause, 2002, Europe	38
Figure 2.1b Disability-adjusted life years lost by cause, 2002, EU.....	38
Table 2.2 Age-standardized DALYs rate for CHD, stroke and other CVD, 2002, Europe.....	39
Figure 2.2a Age-standardized DALYs rate for CHD, 2002, Europe	40
Figure 2.2b Age-standardized DALYs rate for stroke, 2002, Europe	40
Table 2.3 30-day case fatality rate after admission for cardiovascular diseases, 2009 or latest year, Europe	41
Table 2.4 Rates of hospital discharges from CVD, 1970 to 2009, Europe	42
Table 2.5 Rates of hospital discharges from CHD, 1970 to 2009, Europe.....	43
Table 2.6 Rates of hospital discharges from stroke, 1970 to 2009, Europe.....	44

Chapter 3 – Treatment 45

Table 3.1	Reported medication at discharge: hospital patients with established CHD, 2006/07, EUROASPIRE III Survey populations 46
Table 3.2	Reported medication, hospital patients with established CHD, 1995/96, 1999/2000 and 2006/07, EUROASPIRE survey populations 47
Figure 3.2	Reported medication use in hospital patients with established CHD, 1995/96, 1999/2000 and 2006/07, EUROASPIRE survey populations 48
Table 3.3	Rates of surgical procedures for treating CVD, 2005 to 2010, Europe 49
Figure 3.3a	Rates of evacuation of subdural haematoma and intracranial haemorrhage, latest available year, Europe 50
Figure 3.3b	Rates of transluminal coronary angioplasty, latest available year, Europe 50
Figure 3.3c	Rates of bypass anastomosis for heart revascularization, latest available year, Europe 51

Chapter 4 – Smoking 52

Table 4.1	Prevalence of smoking, adults aged 15 years and over, by sex, 1980 to 2009, Europe 54
Figure 4.1a	Prevalence of smoking, men aged 15 years and over, latest available year, Europe 56
Figure 4.1b	Prevalence of smoking, women aged 15 years and over, latest available year, Europe 56
Figure 4.1c	Prevalence of smoking, men, 1980 to 2010, selected countries 57
Figure 4.1d	Prevalence of smoking, women, 1980 to 2010, selected countries 57
Table 4.2	Prevalence of smoking, 15 year olds, by sex, 1989/90, to 2009/10, Europe 58
Figure 4.2a	Prevalence of smoking, boys aged 15 years, 2009/10, Europe 59
Figure 4.2b	Prevalence of smoking, girls aged 15 years, 2009/10, Europe 59
Figure 4.2c	Change in smoking rates among 15 year olds, by sex, 1993/94 to 2009/10, Europe 60
Table 4.3	Estimated number of deaths attributable to passive smoking, adults aged 20 years and over, 2002, Europe 61

Chapter 5 – Diet 62

Table 5.1	Frequency of vegetable consumption, adults, by sex, EU 64
Table 5.2	Frequency of fruit consumption, adults, by sex, EU 65
Table 5.3	Daily vegetable consumption, children aged 11, 13 and 15 years, by sex, 2009/10, Europe 66
Table 5.4	Daily fruit consumption, children aged 11, 13 and 15 years, by sex, 2009/10, Europe 67
Figure 5.3	Daily vegetable consumption, 15 year olds, by sex, 2009/10, Europe 68
Figure 5.4	Daily fruit consumption, 15 year olds, by sex, 2009/10, Europe 68
Table 5.5	Total energy consumption, 1970 to 2007, Europe 69
Figure 5.5a	Total energy consumption, 1970 to 2007, by region, Europe 70
Figure 5.5b	Total energy consumption, 2007, Europe 70
Table 5.6	Vegetable consumption, 1970 to 2007, Europe 71
Figure 5.6a	Vegetable consumption, 1970 to 2007, by region, Europe 72
Figure 5.6b	Vegetable consumption, 2007, Europe 72
Table 5.7	Fruit consumption, 1970 to 2007, Europe 73
Figure 5.7a	Fruit consumption, 1970 to 2007, by region, Europe 74
Figure 5.7b	Fruit consumption, 2007, Europe 74
Table 5.8	Total fat consumption and percentage of total energy available from fat, 1970 to 2007, Europe 75
Figure 5.8	Percentage of energy available from fat, 2007, Europe 76

Chapter 6 – Physical Activity 77

Table 6.1	Frequency of exercising or playing sport, adults, 2009, EU.....	79
Table 6.2	Frequency of participating in informal physical activity, adults, 2009, EU.....	80
Figure 6.1	Prevalence of adults who do no moderate intensity physical activity in a typical week, 2009, EU.....	81
Figure 6.2	Prevalence of adults who participate in physical activity (excluding sport) at least 5 times per week, 2009, EU	81
Table 6.3	Prevalence of insufficiently active adults, aged 15 years and older, 2008, by sex, Europe.....	82
Table 6.4	Prevalence of children who participate in at least one hour of moderate to vigorous physical activity (MVPA) per day, by sex, 2005/06 and 2009/10, Europe	83
Figure 6.4a	Prevalence of 11 year olds participating in 1 hour or more of MVPA per day, by sex, 2009, Europe.....	85
Figure 6.4b	Prevalence of 13 year olds participating in 1 hour or more of MVPA per day, by sex, 2009, Europe.....	85
Figure 6.4c	Prevalence of 15 year olds participating in 1 hour or more of MVPA per day, by sex, 2009, Europe.....	85
Table 6.5	Prevalence of children who watch television for two or more hours per day on weekdays, by sex, 2005/06 and 2009/10, Europe	86
Figure 6.5a	Prevalence of 11 year olds watching 2 or more hours of television per day, by sex, 2009, Europe.....	88
Figure 6.5b	Prevalence of 13 year olds watching 2 or more hours of television per day, by sex, 2009, Europe.....	88
Figure 6.5c	Prevalence of 15 year olds watching 2 or more hours of television per day, by sex, 2009, Europe.....	88

Chapter 7 – Alcohol 89

Table 7.1	Alcohol consumption, adults aged 15 years and over, 1970 to 2010, Europe.....	90
Figure 7.1a	Alcohol consumption, adults aged 15 years and over, 2007, Europe.....	91
Figure 7.1b	Alcohol consumption, adults aged 15 years and over, 1970 to 2010, selected countries.....	91

Chapter 8 – Blood Pressure 92

Table 8.1	Prevalence of raised blood pressure or blood pressure medication use, adults aged 25 years and over, by sex, 2008, Europe	93
Figure 8.1	Prevalence of raised blood pressure, adults aged 25 years and over, by sex, 2008, Europe.....	94
Table 8.2	Mean systolic blood pressure, adults aged 25 and over, by sex, 1980 to 2008, Europe.....	95

Chapter 9 – Blood Cholesterol..... 97

Table 9.1	Prevalence of raised blood cholesterol, adults aged 25 years and over, by sex, 2008, Europe.....	98
Figure 9.1	Prevalence of raised cholesterol (≥ 6.2 mmol/L), by sex, 2008, Europe.....	99
Table 9.2	Mean blood cholesterol levels, by sex, 1980 to 2008, Europe.....	100

Chapter 10 – Overweight and Obesity 102

Table 10.1	Prevalence of overweight and obesity, by sex, latest available year, Europe.....	104
Figure 10.1a	Prevalence of obesity among adult men, latest available year, Europe.....	105
Figure 10.1b	Prevalence of obesity among adult women, latest available year, Europe.....	105
Table 10.2	Mean BMI, adults aged 20 years and over, by sex, 1980 to 2008, Europe.....	106
Figure 10.2a	Mean BMI, men aged 20 years and over, 2008, Europe.....	108
Figure 10.2b	Mean BMI, women aged 20 years and over, 2008, Europe.....	108
Table 10.3	Prevalence of childhood overweight, by sex, latest available year, Europe.....	109

Chapter 11 – Diabetes 110

Table 11.1	Prevalence of diabetes, adults, 1980 to 2009, Europe.....	111
Figure 11.1a	Prevalence of diabetes, adults, latest available year, Europe.....	112
Figure 11.1b	Prevalence of diabetes, 1980 to 2009, selected countries.....	112
Table 11.2	Prevalence of raised blood glucose, adults aged 25 and over, 2008, Europe.....	113
Table 11.3	Trends in mean blood glucose levels, by sex, 1980 to 2008, Europe.....	114

Chapter 12 – Economic Costs	116
Table 12.1 Total cost of CVD, CHD and cerebrovascular diseases, 2009, EU	118
Table 12.2 Health care costs of CVD (€ thousands) by country, 2009, EU	119
Figure 12.2 Percentage of total healthcare expenditure on CVD in the EU, 2009, by resource use category	120
Table 12.3 Health care costs of CHD (€ thousands) by country, 2009, EU	121
Table 12.4 Health care costs of cerebrovascular diseases (€ thousands) by country, 2009, EU	122
Table 12.5 Non health-care costs (€ thousands) of CVD, CHD and cerebrovascular diseases, by country, 2009, EU	123
 Appendix	 124
 Map	 125

Foreword

This is the fourth edition of European Cardiovascular Disease Statistics. This fourth edition is published jointly by the European Heart Network, the European Society of Cardiology and the British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford. It is part of the European Heart Health Strategy II (EuroHeart II) project and benefits from co-funding from the European Union in the framework of the health programme.

CVD remains the main cause of death in Europe with very significant differences in mortality rates between countries. The differences are greatest between Northern, Southern and Western European countries and Central and Eastern European Countries. There are also differences between Western and Southern European countries with Southern European countries still having lower death rates from CVD than Western European countries. However, policy makers need to consider the differences and take a close look at risk factor prevalence and trends. Differences between Southern and Western European countries may persist but they are narrowing. This may be good news for Western Europe not necessarily for Southern Europe.

The data presented in the fourth edition of European Cardiovascular Disease Statistics show that our efforts to reduce mortality from cardiovascular diseases have been successful. Most noticeably, following steep increases in CVD mortality in some Central and Eastern European countries, these countries are now since the mid-2000 experiencing a decrease. However, the cost to the European Union economies of cardiovascular diseases (CVD) is not decreasing.

A read through the chapters of the European Cardiovascular Disease Statistics confirms that Europe suffers badly from lack of data and, particularly, lack of comparable data. This is true for prevalence and incidence rates, rates of surgical procedures as well as for diets. The European Union has an important task in developing standard methods for collecting information or agreed procedures for calibration of locally appropriate methods and questionnaires, to ensure effective service planning and quality of care for patients across the European Union.

Susanne Løgstrup
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Summary

- Each year cardiovascular disease (CVD) causes over 4 million deaths in Europe and over 1.9 million deaths in the European Union (EU).
- CVD causes 47% of all deaths in Europe and 40% in the EU.
- CVD is the main cause of death in women in all countries of Europe and is the main cause of death in men in all but 6 countries.
- Death rates from CHD are generally higher in Central and Eastern Europe than in Northern, Southern and Western Europe.
- Death rates from stroke are many times higher in Central and Eastern Europe than in Northern, Southern and Western Europe.
- CVD mortality is now falling in most European countries, including Central and Eastern European countries which saw large increases until the beginning of the 21st century.
- Smoking remains a major public health issue in Europe. Although smoking has declined in many European countries the rate of decline is now slow and rates remain stable or are increasing in some countries, particularly among women.
- Women are now smoking nearly as much as men in many European countries and girls often smoke more than boys.
- Fruit and vegetable consumption has increased overall across Europe in recent decades, while overall fat consumption has remained stable.
- Few adults in European countries participate in adequate levels of physical activity, with inactivity more common among women than men.
- Levels of obesity are high across Europe in both adults and children, although rates vary substantially between countries.
- The prevalence of diabetes in Europe is high and has increased rapidly over the last ten years, increasing by more than 50% in many countries.
- Overall CVD is estimated to cost the EU economy almost €196 billion a year.
- Of the total cost of CVD in the EU, around 54% is due to health care costs, 24% due to productivity losses and 22% due to the informal care of people with CVD.

Introduction

The aim of the publication

This is the fourth edition of *European Cardiovascular Disease Statistics*. *European Cardiovascular Disease Statistics* is designed for policy makers, health professionals, medical researchers and anyone else with an interest in cardiovascular diseases (CVD). It provides the most recent statistics related to the incidence, prevalence, causes and effects of the diseases.

The aim of *European cardiovascular disease statistics* is to show:

- I. the extent to which CVD is a major health problem in Europe;
- II. where, in Europe, this problem is greatest;
- III. the variability in efforts to treat and prevent CVD across Europe as shown by differences in levels of treatment and in levels of risk factors for the disease;
- IV. changes in CVD mortality, morbidity, treatment and risk factors over time;
- V. the economic costs of CVD in the European Union.

European Cardiovascular Disease Statistics is divided into 12 sections. The first two sections on mortality and morbidity deal with the burden of CVD in Europe. Next there is a section on treatment. Then there are four sections on the main aspects of lifestyle which affect the risk of CVD: smoking, diet, physical activity and alcohol consumption. These are followed by four sections on the main pathophysiological risk factors: raised blood pressure, raised blood cholesterol, overweight/obesity and diabetes. The final section provides information about the economic costs of CVD in the European Union (EU). Each section contains a set of tables and graphs and a brief description of the data presented.

In *European Cardiovascular Disease Statistics* we aim only to describe and not to explain. So, although there may be relationships between various geographical and temporal patterns observed, we have made no attempt to draw any conclusions about the strength of these relationships or about causality.

Sources and scope of the data

In compiling the first 11 sections of *European Cardiovascular Disease Statistics* we have only consulted international sources: that is the World Health Organization (WHO), the WHO MONICA (monitoring trends in cardiovascular disease) Project, the Food and Agriculture Organization of the United Nations (FAO), the EU, the European Society of Cardiology, etc. In the final section on economic costs, we have also consulted national sources. It should be noted that the data presented are extremely variable in quality and are only a selection of those available. The original sources need to be consulted for further information.

We also investigated several sources of data from which we have not extracted statistics: either because the data provided were similar, but less comprehensive or less recent than those we have included, or were not directly relevant to the focus of the publication.

There are many different definitions of 'Europe'. We have chosen to use the member states of the World Health Organization's European Region as our definition of 'Europe'. (An appendix includes a map and lists the member states of the World Health Organization's European Region and of the EU). The number of European countries covered in the tables and graphs varies considerably. We have, where possible, given an overall figure for Europe and also for the EU.

1. Mortality

Total mortality

Diseases of the heart and circulatory system (cardiovascular disease or CVD) are the main cause of death in Europe: accounting for over 4 million deaths each year¹. Nearly half (47%) of all deaths are from CVD (52% of deaths in women and 42% of deaths in men). The main forms of CVD are coronary heart disease (CHD) and stroke². Just under half of all deaths from CVD in both men and women are from CHD, with stroke accounting for nearly a third of deaths in women and a quarter of deaths in men (Table 1.1, Figures 1.1a and 1.1b).

CVD is also the main cause of death in the European Union (EU) accounting for 1.9 million deaths each year. Forty percent of all deaths in the EU (43% of deaths in women and 36% of deaths in men) are from CVD - slightly less than for Europe as a whole. Over a third of deaths from CVD in the EU are from CHD and just over a quarter are from stroke (Table 1.1, Figures 1.1c and 1.1d).

CHD by itself is the single most common cause of death in Europe: accounting for 1.8 million deaths in Europe each year. Over one in five women (22%) and one in five men (20%) die from the disease (Table 1.1). CHD is also the single most common cause of death in the EU, accounting for over 681,000 deaths in the EU each year: 15% of deaths among men, and 13% of deaths among women (Table 1.1).

Stroke by itself is the second single most common cause of death in Europe: accounting for almost 1.1 million deaths in Europe each year. Over one in seven women (15%) and one in ten men (10%) die from the disease (Table 1.1). Stroke is also the second most common single cause of death in the EU, accounting for over 460,000 deaths in the EU each year. Around one in every twelve men (8%) and one in ten women (11%) die from the disease (Table 1.1).

CVD is the main cause of death for women in all countries of Europe for which we have mortality data and it is the main cause of death for men in all but 6 of these countries (exceptions are France, Israel, the Netherlands, San Marino, Slovenia and Spain). CVD causes more than 50% of deaths in women in 29 countries, mostly in Central and Eastern Europe. In nine countries CVD causes more than 50% of deaths in men: Azerbaijan, Belarus, Bulgaria, Georgia, Montenegro, Romania, FYR Macedonia, Romania, Ukraine and Uzbekistan (Table 1.1).

CVD remains the main cause of death for women in all 27 countries of the EU and it is the main cause of death for men in all these countries except France, the Netherlands, Slovenia and Spain³. For men living in EU countries CVD causes between 60% (Bulgaria) and 25% (France) of deaths³ and for women between 70% (Bulgaria) and 30% (France and the Netherlands) of deaths³ (Table 1.1).

Deaths before the age of 75

CVD is the main cause of death before the age of 75 in Europe, accounting for almost 1.5 million deaths each year. Thirty eight percent of deaths before the age of 75 in women and 37% of deaths before the age of 75 in men are from CVD (Tables 1.1 and 1.2, Figures 1.2a and 1.2b).

CVD is the main cause of death before the age of 75 for men in 29 of the 51 countries of Europe for which we have mortality data and in 23 countries for women. CVD causes between 50% (Bulgaria) and 17% (France)³ of deaths before the age of 75 in men, and between 57% (Ukraine) and 13% (Iceland) of deaths before the age of 75 in women (Table 1.2).

In the EU, CVD is the second largest cause of death before the age of 75 (after cancer), accounting for almost 490,000 deaths. CVD causes 27% of premature deaths in the EU, while cancer causes 39%. Twenty nine percent of deaths before the age 75 in men and 25% of deaths before the age of 75 in women are from CVD (Tables 1.1 and 1.2, Figures 1.2c and 1.2d).

CVD is the main cause of death before the age of 75 for men in 11 countries out of 27 in the EU: Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia. For women it is the main cause in five countries: Bulgaria, Estonia, Latvia, Lithuania and Romania (Table 1.2).

CHD by itself is the single most common cause of death before the age of 75 in Europe, accounting for over 734,000 deaths. Nineteen percent of deaths before the age of 75 in men and 17% of deaths before the age of 75 in women are from CHD (Table 1.2, Figures 1.2a and 1.2b).

CHD by itself is the single most common cause of death before the age of 75 in the EU, accounting for over 206,000 deaths. In the EU, CHD causes 13% of deaths before the age of 75 in men – more than the most common form of cancer in men – lung cancer – which causes 10% of deaths. CHD causes 9% of deaths before the age of 75 in women – more than the most common form of cancer in women – breast cancer – which causes 8% of deaths (Table 1.2, Figures 1.2c and 1.2d).

Stroke accounts for over 370,000 deaths among those aged 75 and under in Europe. Stroke accounts for around 8% of all deaths in Europe among men aged under 75 and 11% of deaths among women aged under 75.

Stroke accounts for almost 110,000 deaths among those aged 75 and under in the EU. Of the deaths in the EU among those aged under 75, 6% of male deaths and 7% of female deaths were due to stroke.

Deaths before the age of 65

CVD is the main cause of death before the age of 65 in Europe: accounting for over 680,000 deaths each year. Thirty one percent of deaths before the age of 65 in men and 26% of deaths before the age of 65 in women are from CVD (Tables 1.1 and 1.3, Figures 1.3a and 1.3b).

CVD is the main cause of death before the age of 65 for men in 26 of the 51 countries of Europe for which we have mortality data and in 17 countries for women. CVD causes between 43% (Bulgaria) and 15% (France)³ of deaths before the age of 65 in men, and between 38% (Bulgaria) and 6% (Iceland) of deaths before the age of 65 in women (Table 1.3).

CVD is the second largest cause of death before the age of 65 in the EU, accounting for over 211,000 deaths. CVD causes 22% of deaths in this age group, while cancer causes 36%. One quarter (25%) of deaths before the age 65 in men and 18% of deaths before the age of 65 in women are from CVD (Tables 1.1 and 1.3, Figures 1.3c and 1.3d).

CVD is the main cause of death before the age of 65 for men in nine countries in the EU (Bulgaria, Cyprus, Estonia, Finland, Latvia, Lithuania, Poland, Romania and Slovakia). For women it is the main cause of death before the age of 65 only in Bulgaria (Table 1.3).

CHD by itself is the single most common cause of death before the age of 65 in Europe: accounting for just over 330,000 deaths. Sixteen percent of deaths before the age of 65 in men and 10% of deaths before the age of 65 in women are from CHD (Table 1.3, Figures 1.3a and 1.3b).

In the EU CHD causes almost 92,000 deaths before the age of 65. In the EU, CHD causes 12% of deaths before the age of 65 in men - more than the most common form of cancer in men - lung cancer - which causes 10% of deaths. CHD causes 6% of deaths before the age of 65 in women - less than the most common form of cancer in women - breast cancer - which causes 10% of deaths (Table 1.3, Figures 1.3c and 1.3d).

Stroke accounts for almost 150,000 deaths among those aged 65 and under in Europe. Stroke accounts for around 6% of all deaths in Europe among men aged under 65 and just over 7% of deaths among women aged under 65.

Stroke accounts for almost 42,000 deaths among those aged 65 and under in the EU. Of the deaths in the EU among those aged under 65, 4% of male deaths and 5% of female deaths were due to stroke.

Death rates

Death rates from CHD are generally higher in Central and Eastern Europe than in Northern, Southern and Western Europe. For example the death rate for men aged under 65 living in the Russian Federation is more than thirteen times higher than in France, and for women it is almost sixteen times higher. Western European countries generally have higher rates than Southern European Countries. For example the death rate for both men and women aged under 65 living in Ireland is 1.7 times higher than in Italy (Table 1.4, Figures 1.4a and 1.4b).

Death rates from stroke are higher in Central and Eastern Europe than in Northern, Southern and Western Europe. For example the death rate in men and women aged under 65 living in Kyrgyzstan is around twenty times higher than in Norway (Table 1.5, Figures 1.5a and 1.5b).

Over the past 30 years death rates from CHD have been consistently falling in most Northern and Western European countries, however trends in Central and Eastern European countries have been more mixed, including relative stability in some places for example Bulgaria (Figure 1.4c, 1.4d) and rapid increases in countries including Ukraine and Belarus. Since around 2000 to 2005, however, rates are now also falling in the majority of Central and Eastern European countries. Between 1999 and 2009, death rates for men aged under 65 living in Iceland and the Netherlands fell by 57% and 55% respectively, while in countries such as Ukraine, the Russian Federation and Lithuania, small decreases in death rates for that decade overall (up to 10% decreases from 1999 rates) hide a pattern of steep increases until the mid-2000s, followed by equally steep falls in recent years. Among women, Estonia recorded a remarkable decrease of 60% in death rates from CHD between 1999 and 2009, while the Netherlands and Norway showed a halving of rates over the same period. Only in Lithuania and Kyrgyzstan were death rates from CHD for women higher in 2009 than in 1999 (Table 1.4, Figures 1.4c and 1.4d).

Death rates from stroke are falling rapidly in most European countries with few exceptions. For both men and women aged under 65, the largest percentage decreases in death rates from stroke were in Estonia (57% and 68% respectively between 1999 and 2009). Almost all European countries recorded very substantial decreases in death rates from stroke for the last ten years of available data. The main exception was Slovakia, where small increases in rates was evident overall between 1999 and 2009 (7% for men and 6% for women), however rates varied substantially from year to year, and if 1998 to 2008 were taken as the example, there was an 11% decrease in death rates among men and 21% decrease among women (Table 1.5, Figure 1.5c and 1.5d).

Years of Life Lost due to preventable early death

Potential Years of Life Lost (PYLL) provides a way of weighting deaths occurring at younger ages, which should be preventable. The calculation of PYLL involves summing up deaths occurring at each age and multiplying this with the number of remaining years to live up to 70 years (or other selected age limit)⁴. Data from the OECD show that CVD makes a significant, yet highly variable contribution to potential years of life lost before age 70 in Europe. Among men, CVD accounts for between 12% of all PYLL in Portugal, France and Israel, to 25% or more of all

PYLL in Estonia, Hungary and the Russian Federation (Table 1.6). Among women, the countries with the greatest proportion of years lost due to CVD were Slovakia and the Russian Federation, while the lowest proportions of PYLL due to CVD were in Iceland and Israel.

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- 1 When we state, in this section, that CVD is the main cause of death we are comparing "Diseases of the circulatory system" (Chapter IX 10th Revision) of the International Classification of Diseases, with other chapters (e.g. Chapter II "Neoplasms"). When we state that CHD is the most common cause of death we are comparing CHD (Chapter IX, I20-I25, 10th Revision) with all diseases within all chapters (e.g. with lung cancer, Chapter II, C33-C34, 10th Revision).
 - 2 The following ICD codes have been used for collating mortality data in this chapter, and where available, elsewhere in this report: CVD (ICD-10 codes I00-I99; ICD-9 codes 3900-4599; ICD-8 codes 3900-4589) CHD (ICD-10 codes I20-I25; ICD-9 and ICD-8 codes 4100-4149) Stroke (ICD-10 codes I60-I69; ICD-9 and ICD-8 codes 4300-4380). For externally collated data, see source for details.
 - 3 Data from the WHO MONICA project suggest that official mortality statistics in France under-report deaths from CVD compared to other countries. MONICA data from the French populations included in the MONICA Project (Lille, Strasbourg and Toulouse) show an underestimate of CHD deaths of over 75%. (See WHO Monica Project (2003) MONICA Monograph and Multimedia Sourcebook: World's largest study of heart disease stroke, risk factors and population trends 1979-2002. Edited by Hugh Tunstall-Pedoe for the WHO MONICA Project. WHO: Geneva). Table 1.1 also highlights that doctors in France have a much higher rate of reporting deaths from "all other causes". Together these suggest that the true numbers and proportions of deaths from CVD and CHD in France are likely to be higher than those reported in Table and Figures 1.1.
 - 4 Organisation for Economic Co-operation and Development (OECD). OECD Health Data 2012: Definitions, Sources and Methods. <http://www.oecd.org/health/healthdata>: OECD, June 2012.

Table 1.1 Total numbers of deaths by cause and sex, latest available year, Europe

Men	Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other cancer	Respiratory disease	Injuries and poisoning	All other causes
Albania	2004	9,949	1,593	1,521	1,565	233	60	464	0	950	544	793	2,226
Austria	2009	14,253	4,150	1,300	1,029	288	1,79	987	6	1,556	1,034	913	2,811
Armenia	2010	36,692	7,185	1,869	4,665	4,79	1,106	2,386	12	6,481	2,171	2,715	7,623
Azerbaijan	2007	26,517	3,380	3,959	6,195	379	102	428	8	1,896	1,579	1,745	6,846
Belarus	2009	70,565	25,519	7,411	2,800	1,393	1,029	2,800	0	5,382	3,026	10,895	10,295
Belgium	2005	50,949	6,380	3,072	6,145	511	1,535	5,038	17	8,001	6,512	3,952	9,786
Bosnia and Herzegovina	1991	17,010	2,006	1,764	3,531	334	217	1,206	0	1,570	648	1,678	4,056
Bulgaria	2008	58,303	8,065	10,352	16,632	883	1,340	2,877	26	5,416	2,700	2,980	7,032
Croatia	2009	26,019	4,885	3,268	2,942	532	1,059	2,176	19	3,951	1,353	1,889	3,945
Cyprus	2009	2,780	462	159	392	28	50	168	3	397	214	217	690
Czech Republic	2009	54,080	12,101	4,820	7,130	707	2,277	3,977	15	8,531	3,505	4,176	6,841
Denmark	2006	27,013	3,257	1,969	2,915	227	1,033	2,077	16	4,716	2,388	1,591	6,824
Estonia	2009	8,010	1,881	534	1,328	153	201	476	0	1,067	301	1,003	1,066
Finland	2009	25,152	6,024	1,756	2,078	278	537	1,432	4	3,560	1,333	2,901	5,249
France	2008	271,671	21,525	13,497	33,256	2,903	8,820	22,153	193	55,038	17,190	22,406	74,690
Georgia	2009	24,191	3,053	3,743	5,903	273	161	638	2	1,647	414	1,308	7,049
Germany	2010	409,022	67,403	23,576	58,492	5,777	13,340	29,381	107	69,627	32,009	20,187	89,123
Greece	2009	57,015	7,461	6,654	9,031	842	1,351	5,341	0	9,279	5,609	2,897	8,550
Hungary	2009	66,324	15,588	6,246	7,721	1,002	2,754	5,687	14	8,732	3,669	4,850	10,061
Iceland	2009	1,033	204	75	102	13	41	63	0	193	71	79	192
Ireland	2009	15,044	2,919	872	1,054	232	560	1,063	3	2,759	1,806	1,370	2,406
Israel	2008	19,495	2,543	916	1,466	276	625	1,066	21	2,975	1,581	1,381	6,645
Italy	2008	284,027	38,176	25,318	35,158	5,925	9,812	25,366	134	52,261	21,166	14,481	56,230
Kazakhstan	2009	78,647	13,434	8,809	11,234	1,413	772	2,630	0	4,806	4,995	13,361	17,193
Kyrgyzstan	2009	20,125	5,161	2,865	777	426	90	334	5	879	1,755	2,664	5,169
Latvia	2009	14,564	4,027	1,721	1,432	285	324	841	5	1,717	431	1,642	2,139
Lithuania	2009	21,828	6,416	2,102	1,598	407	514	1,149	4	2,515	1,077	3,283	2,763
Luxembourg	2009	1,798	189	147	288	22	54	164	1	312	154	174	293
Malta	2010	1,489	319	103	88	22	60	122	0	251	164	89	271
Monaco	1987	252	23	26	69	4	6	25	0	40	9	8	42
Montenegro	2009	3,012	256	203	1,059	4	34	208	0	240	165	167	658
Netherlands	2010	65,977	6,004	3,462	8,809	926	2,663	6,536	32	12,981	6,660	3,240	14,664
Norway	2009	19,864	2,843	1,376	1,984	171	758	1,230	7	3,479	1,985	1,551	4,480
Poland	2009	203,826	25,407	15,913	42,293	3,460	5,516	16,392	69	27,000	12,206	18,623	36,947
Portugal	2009	53,691	3,950	6,127	4,779	1,412	2,097	2,720	15	8,184	6,399	3,087	14,921
Republic of Moldova	2010	23,211	7,506	2,824	879	312	372	746	11	1,791	1,614	2,863	4,293
Romania	2010	137,957	27,021	22,490	24,482	2,355	3,000	7,705	60	15,037	8,062	9,561	18,184
Russian Federation	2009	1,048,314	278,933	143,803	90,796	20,265	17,255	42,706	240	75,180	55,463	173,089	193,290
San Marino	2005	116	6	12	31	9	6	12	0	22	3	7	8
Serbia	2009	52,377	6,759	7,232	11,749	738	1,534	3,752	30	5,938	2,589	2,709	9,347
Slovakia	2009	27,446	7,717	2,660	2,463	400	1,012	1,592	3	3,697	1,843	2,325	3,728
Slovenia	2009	9,293	1,059	867	1,091	229	473	733	4	1,792	606	1,033	1,406
Spain	2009	199,095	20,320	13,216	21,279	3,533	8,319	17,296	71	33,847	24,929	9,773	46,512
Sweden	2010	43,919	8,204	3,111	5,739	378	1,309	1,922	6	7,682	2,551	2,912	10,105
Switzerland	2007	29,544	4,637	1,585	3,885	321	925	2,104	8	5,568	2,020	2,306	6,275
Tajikistan	2005	15,831	3,267	1,287	3,127	282	65	113	0	742	1,390	1,280	4,278
TFYR Macedonia	2003	9,832	1,280	1,725	2,125	233	200	555	0	932	406	440	1,936
Turkmenistan	1998	16,517	3,648	626	2,861	167	40	151	0	722	2,543	1,842	3,917
Ukraine	2009	351,395	136,369	40,343	22,753	5,696	6,017	12,009	93	24,888	14,861	38,482	49,884
United Kingdom	2009	270,804	47,306	19,171	21,322	3,176	8,504	19,760	77	50,740	35,958	13,233	51,557
Uzbekistan	2005	74,569	20,373	8,404	10,461	918	178	754	1	3,112	6,317	7,706	16,345
Total EU		2,417,769	356,366	191,784	321,660	36,552	78,561	184,354	897	401,620	201,613	154,701	489,661
Total Europe		4,370,407	888,194	436,861	510,983	71,250	110,286	261,436	1,348	550,079	307,978	423,857	808,135

Table 1.1 continued...

	Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other cancer	Respiratory disease	Injuries and poisoning	All other causes
Women													
Albania	2004	7,799	1,065	1,661	1,486	138	41	141	138	553	389	291	1,896
Armenia	2009	13,307	3,875	1,864	1,307	167	193	227	497	1,299	751	309	2,818
Austria	2010	40,507	7,756	3,274	8,447	378	999	1,266	1,502	5,150	2,045	1,485	8,205
Azerbaijan	2007	23,922	2,695	5,130	6,285	229	118	119	251	1,495	1,488	520	5,592
Belarus	2009	64,532	25,236	10,172	1,902	960	169	357	1,194	4,629	1,091	3,001	15,821
Belgium	2005	51,985	5,110	4,720	9,173	316	1,398	1,384	2,268	5,801	5,641	2,508	13,666
Bosnia and Herzegovina	1991	13,670	1,181	2,025	4,290	170	172	234	272	1,193	449	413	3,271
Bulgaria	2008	52,220	6,360	12,088	17,995	608	1,180	601	1,313	3,788	1,766	919	5,602
Croatia	2009	26,395	5,657	4,656	4,568	340	801	623	898	2,927	910	1,098	3,917
Cyprus	2009	2,402	215	218	505	23	40	49	102	280	181	95	694
Czech Republic	2009	53,341	13,664	7,372	9,013	509	1,548	1,478	1,607	7,040	2,888	1,770	6,452
Denmark	2006	28,205	2,979	2,663	3,188	154	1,024	1,708	1,246	3,426	2,865	1,081	7,871
Estonia	2009	8,089	2,451	851	1,751	150	207	133	236	906	146	281	977
Finland	2009	24,752	5,510	2,624	2,369	209	554	596	819	3,009	877	1,249	6,936
France	2008	260,803	16,219	18,780	43,386	1,743	7,789	6,838	11,634	34,507	15,486	14,632	89,789
Georgia	2009	22,434	2,835	4,466	5,725	169	134	136	500	1,379	352	343	6,395
Germany	2010	449,746	65,723	37,974	99,521	4,400	12,276	13,627	17,466	52,934	28,506	13,125	104,194
Greece	2009	51,301	4,461	8,839	12,007	462	1,029	1,106	1,914	6,004	5,161	804	9,514
Hungary	2009	64,090	17,598	7,899	9,869	822	2,177	2,766	2,169	6,438	2,797	2,337	9,218
Iceland	2009	969	146	84	118	3	22	69	36	122	104	39	226
Ireland	2009	13,854	2,209	1,242	1,396	125	371	691	676	1,916	1,887	524	2,817
Israel	2008	19,746	2,171	1,128	2,034	180	611	495	971	2,765	1,619	655	7,117
Italy	2008	297,443	37,338	38,299	51,299	4,252	8,505	7,743	12,195	38,698	16,605	9,844	72,665
Kazakhstan	2009	64,131	11,575	10,236	11,023	851	775	566	1,368	4,616	2,729	3,897	16,495
Kyrgyzstan	2009	15,773	5,377	2,917	477	166	104	91	241	888	1,250	804	3,458
Latvia	2009	15,368	4,566	2,915	1,417	244	364	178	438	1,553	219	516	2,958
Lithuania	2009	20,204	8,001	3,671	1,504	281	472	233	594	1,963	484	885	2,116
Luxembourg	2009	1,823	116	191	392	13	71	71	85	243	152	96	393
Malta	2010	1,521	327	161	154	9	51	37	79	221	129	30	323
Monaco	1987	251	6	51	73	2	11	9	8	25	12	5	49
Montenegro	2009	2,854	161	317	1,222	17	47	65	73	185	110	65	592
Netherlands	2010	70,081	4,378	5,377	10,979	524	2,407	3,678	3,213	9,413	6,356	2,509	21,247
Norway	2009	21,478	2,535	1,954	2,797	155	780	830	671	2,466	2,137	1,045	6,108
Poland	2009	181,114	22,368	20,451	51,533	1,871	4,587	5,956	5,242	23,248	8,446	5,674	31,738
Portugal	2009	51,273	3,608	8,158	6,850	969	1,519	739	1,620	5,127	5,803	1,390	15,490
Republic of Moldova	2010	20,420	9,060	3,348	895	170	345	181	457	1,248	819	829	3,068
Romania	2010	121,766	26,276	26,815	29,275	1,184	2,310	1,951	3,153	10,561	4,670	2,818	12,753
Russian Federation	2009	962,229	306,244	228,731	88,154	15,206	21,088	8,727	23,517	66,553	23,999	51,487	128,523
San Marino	2005	103	3	16	31	5	3	7	3	19	1	1	14
Serbia	2009	51,623	6,115	9,492	15,604	428	1,086	1,303	1,614	4,625	1,614	1,030	8,712
Slovakia	2009	25,467	9,295	3,321	2,793	284	707	467	746	2,920	1,328	632	2,974
Slovenia	2009	9,457	929	1,294	2,192	130	313	297	434	1,342	657	566	1,303
Spain	2009	185,838	15,294	17,941	32,007	2,163	5,841	3,129	6,129	21,213	18,353	4,723	59,045
Sweden	2010	46,600	6,808	4,491	7,591	284	1,247	1,661	1,395	5,766	2,506	1,747	13,104
Switzerland	2007	31,545	4,398	2,540	5,568	221	815	999	1,268	3,881	1,713	1,476	8,666
Tajikistan	2005	13,082	2,439	1,358	3,271	61	39	61	109	621	1,357	448	3,212
TFYR Macedonia	2003	8,174	786	1,864	2,404	123	130	86	240	648	301	133	1,459
Turkmenistan	1998	13,179	3,247	750	2,971	102	64	46	100	578	1,989	736	2,596
Ukraine	2009	355,344	174,613	60,139	26,392	3,704	5,818	2,348	8,089	19,111	6,228	10,454	38,448
United Kingdom	2009	288,813	35,425	30,511	27,314	1,855	7,155	15,292	11,678	38,251	40,738	7,848	72,746
Uzbekistan	2005	66,016	19,144	9,793	10,940	621	184	281	795	2,979	5,140	2,436	13,703
Total EU		2,418,063	324,984	272,140	443,920	23,962	66,141	73,675	89,953	291,718	176,692	80,088	574,790
Total Europe		4,237,039	915,548	636,832	643,457	48,256	99,691	91,676	133,263	416,523	233,244	161,603	856,946

Source: WHO Global Mortality Database <http://www.who.int/healthinfo/morttables/en/index.html>

Figure 1.1a Deaths by cause, men, latest available year, Europe

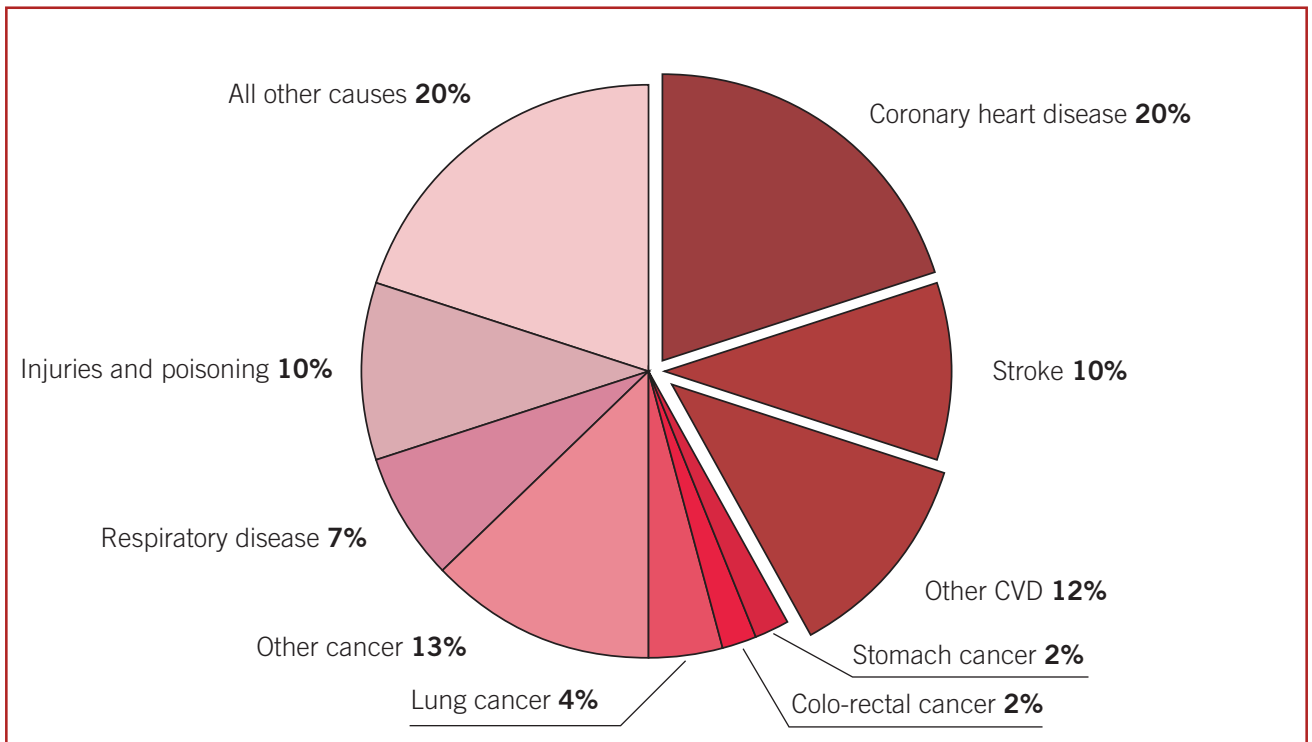


Figure 1.1b Deaths by cause, women, latest available year, Europe

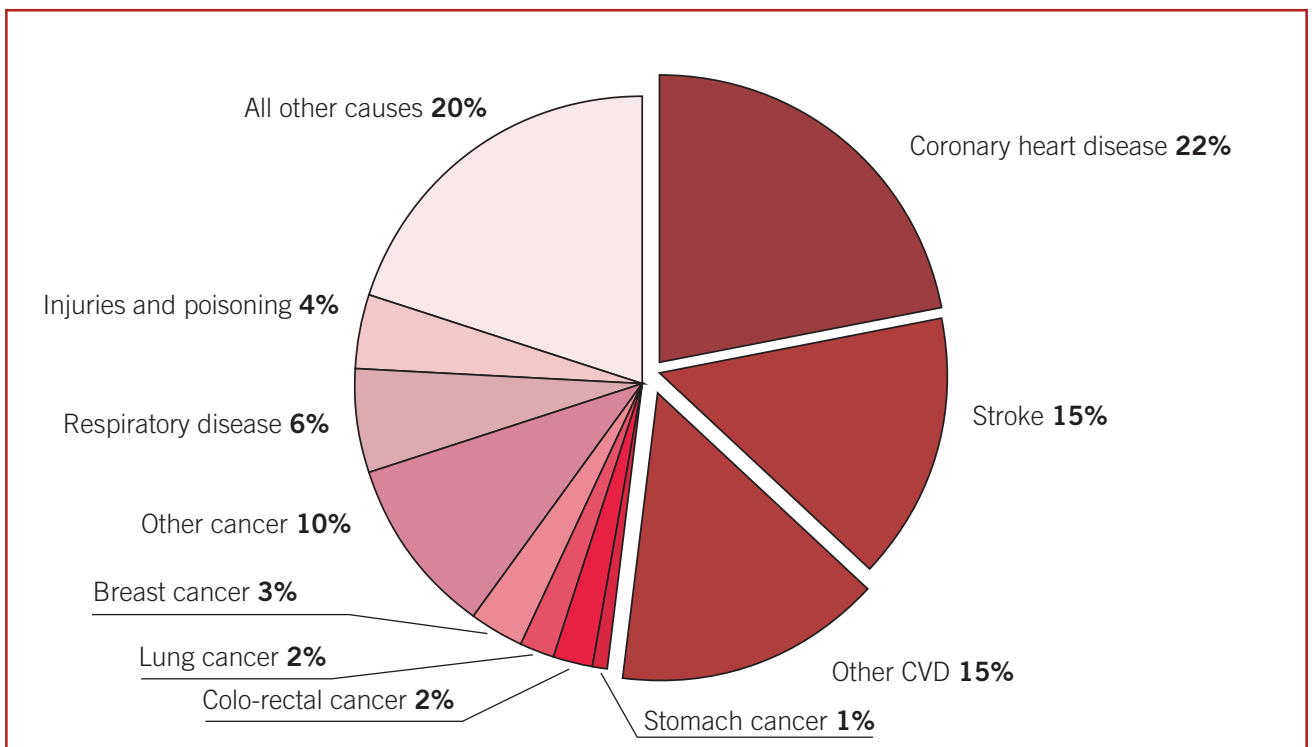


Figure 1.1c Deaths by cause, men, latest available year, EU

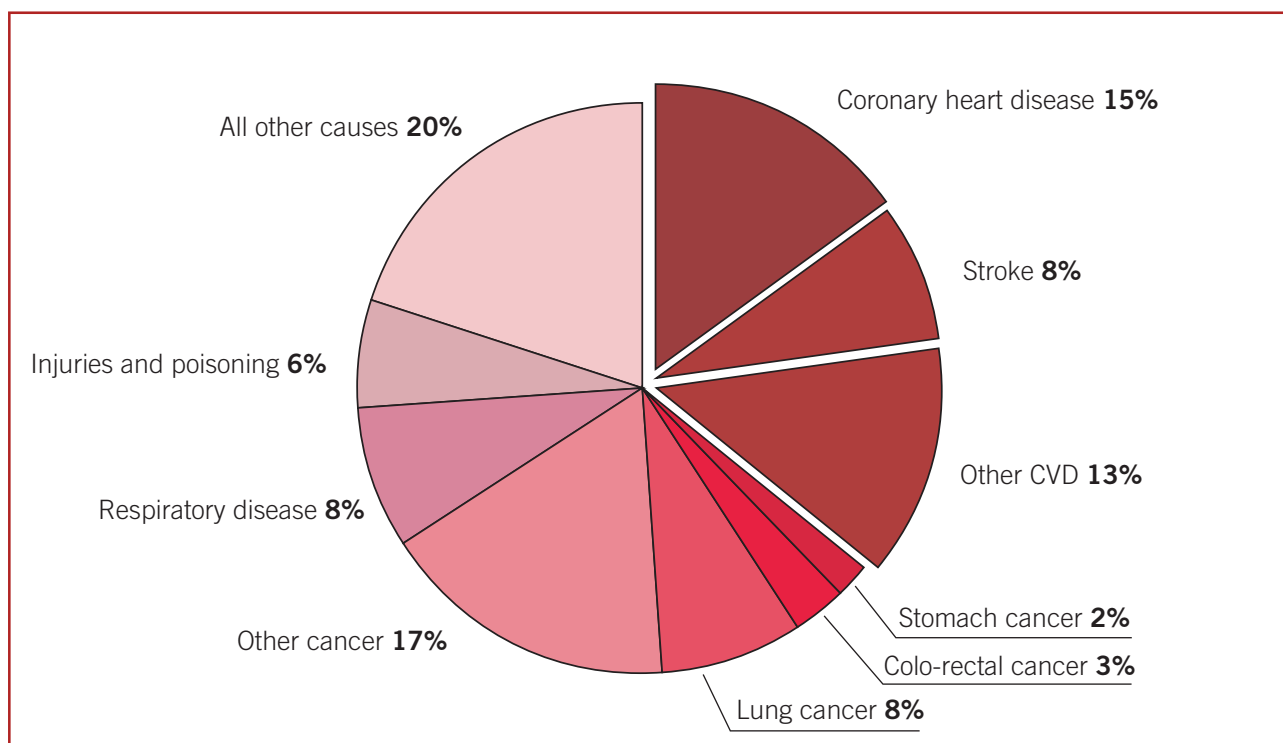


Figure 1.1d Deaths by cause, women, latest available year, EU

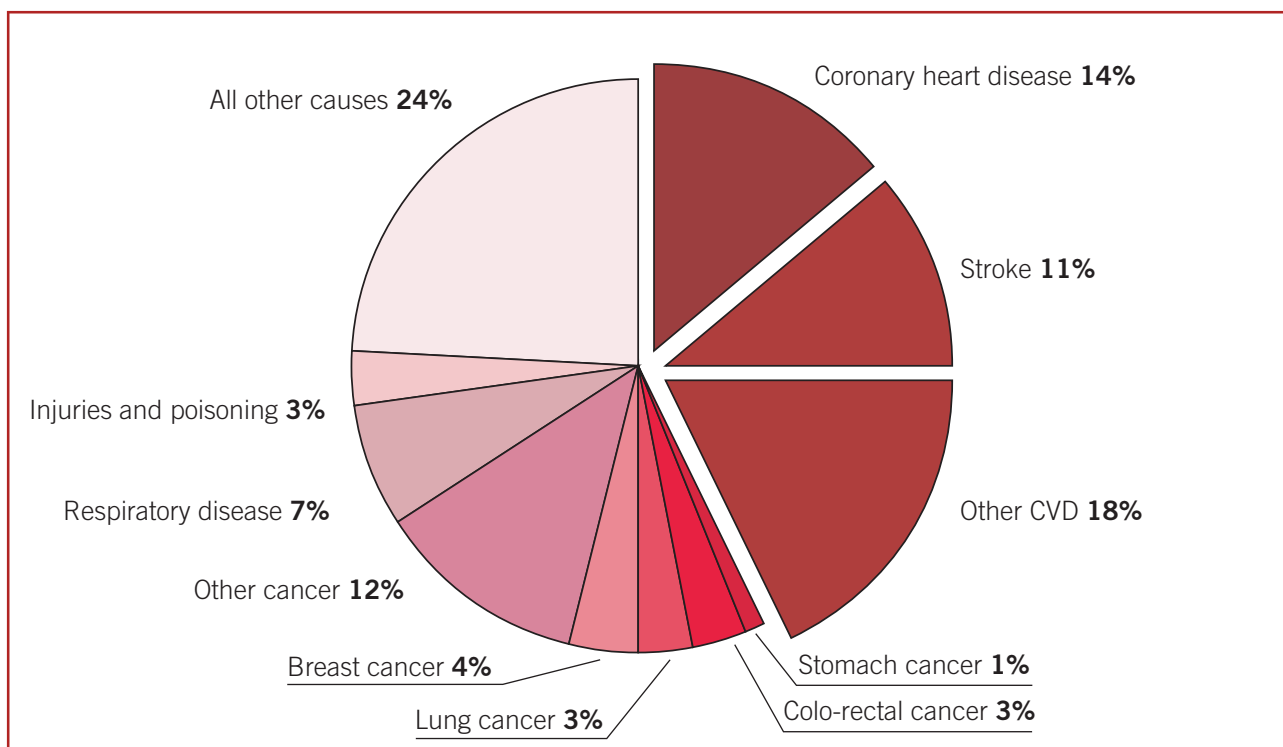


Table 1.2 Deaths under 75 by cause and sex, latest available year, Europe

Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other cancer	Respiratory disease	Injuries and poisoning	All other causes
Men												
2004	6,084	1,020	657	778	184	54	347	0	708	307	756	1,273
2009	9,042	2,429	653	520	200	118	736	4	1,106	528	800	1,948
2010	17,163	2,580	544	1,212	216	576	1,637	5	3,221	740	1,929	4,503
2007	19,570	2,384	2,364	4,176	293	85	382	6	1,304	1,114	1,685	5,777
2009	50,363	15,744	4,789	2,311	1,096	731	2,347	0	4,306	2,116	10,389	6,534
2005	23,411	2,667	988	2,030	263	731	3,082	8	4,055	2,017	3,071	4,499
1991	12,609	1,665	1,160	1,753	285	179	1,066	0	1,282	418	1,603	3,198
2008	32,829	4,400	4,465	7,517	603	824	2,404	18	3,217	1,491	2,622	5,268
2009	14,424	2,363	1,359	1,232	317	625	1,601	12	2,142	549	1,479	2,745
2009	1,252	248	43	86	20	27	117	2	191	62	177	279
2009	30,244	5,304	1,722	3,323	442	1,396	2,956	9	4,973	1,711	3,437	4,971
2006	12,764	1,197	647	1,086	146	517	1,295	7	2,389	715	1,146	3,619
2009	5,133	905	288	794	117	118	336		528	193	933	921
2009	12,806	2,509	647	1,034	171	300	854	2	1,752	485	2,345	2,707
2008	120,949	8,016	3,872	9,173	1,513	3,941	14,781	99	27,171	4,315	15,016	33,052
2009	15,675	1,717	2,025	3,482	210	125	531	2	1,078	262	1,226	5,017
2010	193,253	26,656	7,637	19,747	3,183	7,249	18,938	68	35,704	11,188	14,204	48,679
2009	23,379	4,092	1,580	2,028	438	558	3,273	0	4,312	1,466	2,443	3,189
2009	40,799	7,640	2,919	3,999	639	1,733	4,498	13	5,494	1,924	3,987	7,953
2009	405	60	18	33	5	20	36		83	15	68	67
2009	7,345	1,288	274	388	127	321	630	1	1,371	440	1,274	1,274
2008	8,656	860	292	481	151	278	685	14	1,352	482	1,047	3,014
2008	108,653	12,518	5,308	9,138	2,919	4,711	13,752	80	22,533	4,160	9,390	24,144
2009	64,416	10,157	6,542	8,546	1,229	586	2,331	0	4,092	4,063	13,836	13,836
2009	15,679	2,918	1,905	680	355	74	293	2	395	1,211	2,606	5,240
2009	9,839	2,406	915	1,056	191	193	639	4	987	321	1,547	1,580
2009	14,316	3,175	996	1,126	267	291	851	4	1,406	620	3,079	2,501
2009	83	83	52	84	13	33	113	0	141	58	145	136
2010	717	131	34	32	15	34	90		148	34	67	132
1987	95	7	7	13	0	3	16	0	19	2	7	13
2009	1,852	171	90	551	14	23	162		148	101	143	449
2010	28,928	2,553	1,134	2,964	530	1,433	3,807	12	6,429	1,638	2,134	6,294
2009	7,719	989	338	490	90	357	726	4	1,420	471	1,089	1,745
2009	126,376	14,049	8,088	19,848	2,296	3,503	12,027	42	15,298	5,671	16,918	28,636
2009	23,600	1,676	1,736	1,268	804	1,031	1,883	8	3,662	1,510	2,244	7,778
2010	16,977	3,933	1,755	676	256	296	667	10	1,281	1,187	2,739	4,177
2010	81,699	13,402	9,838	9,747	1,646	1,954	6,341	36	9,166	4,864	8,719	15,986
2009	799,234	186,613	85,292	70,386	15,708	11,957	35,460	179	59,866	42,652	164,708	126,413
2005	40	2	1	6	2	2	5	0	14	0	6	2
2009	28,895	3,788	3,142	4,568	496	1,016	3,036	12	3,400	1,199	2,214	6,024
2009	17,145	3,605	1,320	1,403	265	662	1,211	7	2,370	974	2,137	3,191
2009	5,186	575	334	376	137	272	520	4	928	164	808	1,068
2009	80,691	8,079	3,474	6,042	1,802	3,824	10,653	40	15,069	5,767	7,130	18,811
2010	15,607	2,493	721	1,254	192	644	1,076	2	3,066	634	1,891	3,634
2007	12,066	1,503	328	1,088	172	437	1,304	5	2,732	514	1,607	2,376
2005	11,828	2,172	812	1,760	220	58	97	0	635	1,069	1,250	3,755
2003	6,134	915	924	810	185	143	483	0	731	211	378	1,354
1998	14,551	2,705	487	2,373	150	38	145	0	679	2,435	1,806	3,733
2009	251,624	80,544	23,905	15,354	4,685	4,533	10,350	74	20,742	10,677	36,845	43,915
2009	114,890	19,617	4,756	7,473	1,440	4,254	10,692	41	23,330	9,862	10,160	23,265
2005	58,234	13,154	5,525	7,658	791	205	672	1	1,934	5,563	7,555	15,176
Total EU	1,149,832	151,864	64,332	114,228	20,395	41,130	118,456	512	198,911	63,024	118,910	258,070
Total Europe	2,576,004	489,685	208,702	243,953	47,489	63,073	181,934	837	310,360	140,170	373,950	515,851

Table 1.2 continued...

Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other cancer	Respiratory disease	Injuries and poisoning	All other causes
2004	3,310	438	524	490	99	26	96	117	420	158	256	686
2009	5,528	1,159	560	402	402	123	149	381	868	219	191	1,379
2010	9,292	844	454	640	123	370	791	791	2,884	365	604	1,426
2007	13,250	1,250	2,358	2,821	149	102	89	227	1,324	828	484	3,620
2009	24,589	7,977	3,669	1,144	606	104	246	942	3,114	657	2,566	3,564
2005	13,362	938	765	1,177	103	518	892	1,369	3,840	923	1,202	1,635
1991	7,963	804	1,106	1,738	127	127	190	242	946	237	371	2,075
2008	18,085	1,814	3,134	4,571	322	629	429	923	3,166	636	658	1,803
2009	7,679	1,081	1,026	757	146	337	388	518	1,880	207	417	922
2009	618	51	32	51	13	21	28	66	191	32	42	91
Cyprus	16,163	2,229	1,097	1,887	251	691	968	892	4,373	829	937	2,009
Czech Republic	8,511	486	478	533	79	391	1,063	722	2,324	738	438	1,259
2009	2,508	368	193	80	81	87	85	158	544	40	217	332
Estonia	6,223	592	376	398	84	232	354	498	1,787	238	708	956
Finland	60,664	1,990	2,418	4,350	640	2,547	4,284	6,463	20,090	1,830	5,354	10,698
France	9,626	893	1,567	2,218	105	97	95	385	1,337	155	276	2,498
Georgia	107,844	8,627	4,981	10,318	1,703	4,500	8,507	9,706	31,870	6,023	4,977	16,632
Germany	11,552	1,143	1,076	1,284	194	371	619	979	2,615	789	541	1,941
Greece	23,036	3,754	1,849	2,264	391	1,077	2,069	1,433	4,823	1,094	1,177	3,105
Hungary	245	11	9	12	2	8	34	20	80	26	21	22
Iceland	4,330	389	212	236	55	149	368	428	1,354	312	364	463
Ireland	5,724	316	199	345	91	253	261	597	1,828	256	265	1,313
Israel	61,912	3,979	3,625	4,933	1,523	3,110	3,938	6,583	21,030	1,904	2,578	8,709
Italy	36,567	5,146	5,360	5,187	636	558	433	1,162	3,773	1,874	3,621	8,817
Kazakhstan	9,123	1,711	1,433	337	118	80	65	203	782	680	749	2,965
Kyrgyzstan	5,370	1,088	721	495	138	181	107	309	1,089	125	382	735
Latvia	6,916	1,403	813	551	153	223	139	405	1,420	188	690	931
Lithuania	484	19	25	47	10	18	38	43	148	39	53	44
Luxembourg	448	53	25	32	2	26	25	48	171	24	16	26
Malta	54	0	5	13	1	2	2	3	9	3	3	13
Monaco	1,215	77	109	382	10	33	55	63	184	43	56	203
Montenegro	19,419	950	1,474	1,474	249	1,028	2,474	1,950	6,208	1,216	883	2,111
Netherlands	4,792	317	185	234	59	293	479	348	1,385	396	379	717
Norway	61,421	5,044	5,067	8,986	968	2,246	4,272	3,512	15,967	2,462	3,421	9,476
Poland	12,491	661	1,112	769	431	638	431	1,002	3,002	696	642	3,107
Portugal	10,363	2,769	1,515	493	134	252	130	374	1,235	404	712	2,345
Republic of Moldova	44,728	6,703	7,172	6,088	663	1,284	1,337	2,172	8,521	2,002	2,202	6,584
Romania	419,391	96,917	69,382	36,982	9,231	12,388	5,605	17,854	46,276	13,760	43,383	67,613
Russian Federation	32	0	3	4	4	1	4	2	13	0	1	0
San Marino	18,587	1,950	2,649	3,393	261	626	988	1,156	3,819	621	649	2,475
Serbia	8,875	1,754	840	747	152	363	328	480	2,126	404	433	1,248
Slovakia	2,493	159	193	209	53	124	172	210	791	73	220	289
Slovenia	37,876	2,056	2,143	3,133	765	2,055	1,978	3,290	11,610	1,961	2,045	6,840
Spain	10,104	868	445	593	120	439	995	793	3,162	556	686	1,447
Sweden	7,202	414	267	486	92	327	641	728	1,783	270	587	1,607
Switzerland	8,358	1,287	750	1,504	128	34	52	102	525	943	430	2,603
Tajikistan	4,013	478	839	693	90	93	71	197	497	126	88	841
TFYR Macedonia	9,693	1,633	433	2,034	82	57	42	92	495	1,813	702	2,310
Turkmenistan	145,868	55,096	20,426	7,159	2,728	4,038	1,732	6,524	15,013	3,218	8,637	21,297
Ukraine	77,277	6,551	3,844	4,730	641	2,802	7,820	6,500	23,161	7,457	3,447	10,324
United Kingdom	40,348	8,537	4,203	6,242	509	177	246	701	2,763	4,228	2,300	10,442
Uzbekistan	632,002	54,513	43,966	60,904	9,907	26,120	44,506	51,725	178,267	32,956	34,917	94,221
Total EU	1,425,524	244,774	162,543	135,974	25,412	46,256	56,599	84,663	268,616	64,078	102,061	234,548
Total Europe												

Source: WHO Global Mortality Database <http://www.who.int/healthinfo/morttables/en/index.html>

Figure 1.2a Deaths under 75 by cause, men, latest available year, Europe

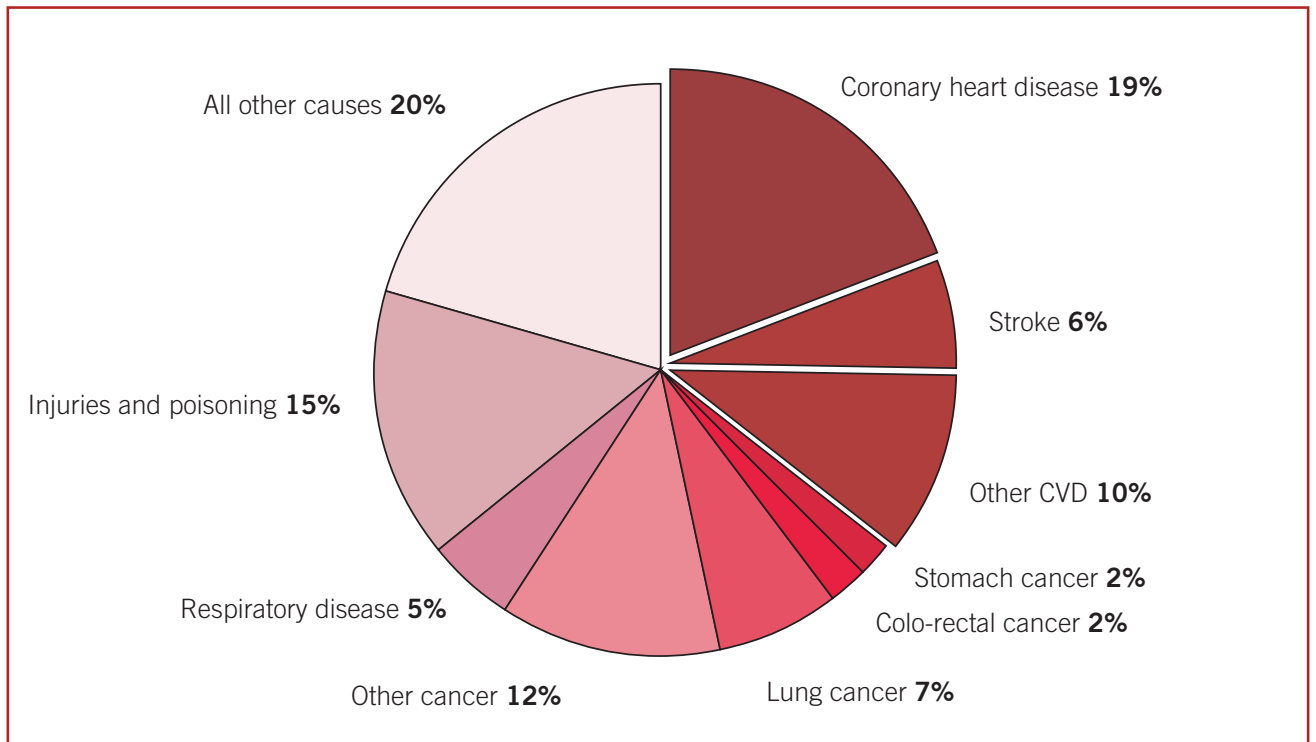


Figure 1.2b Deaths under 75 by cause, women, latest available year, Europe

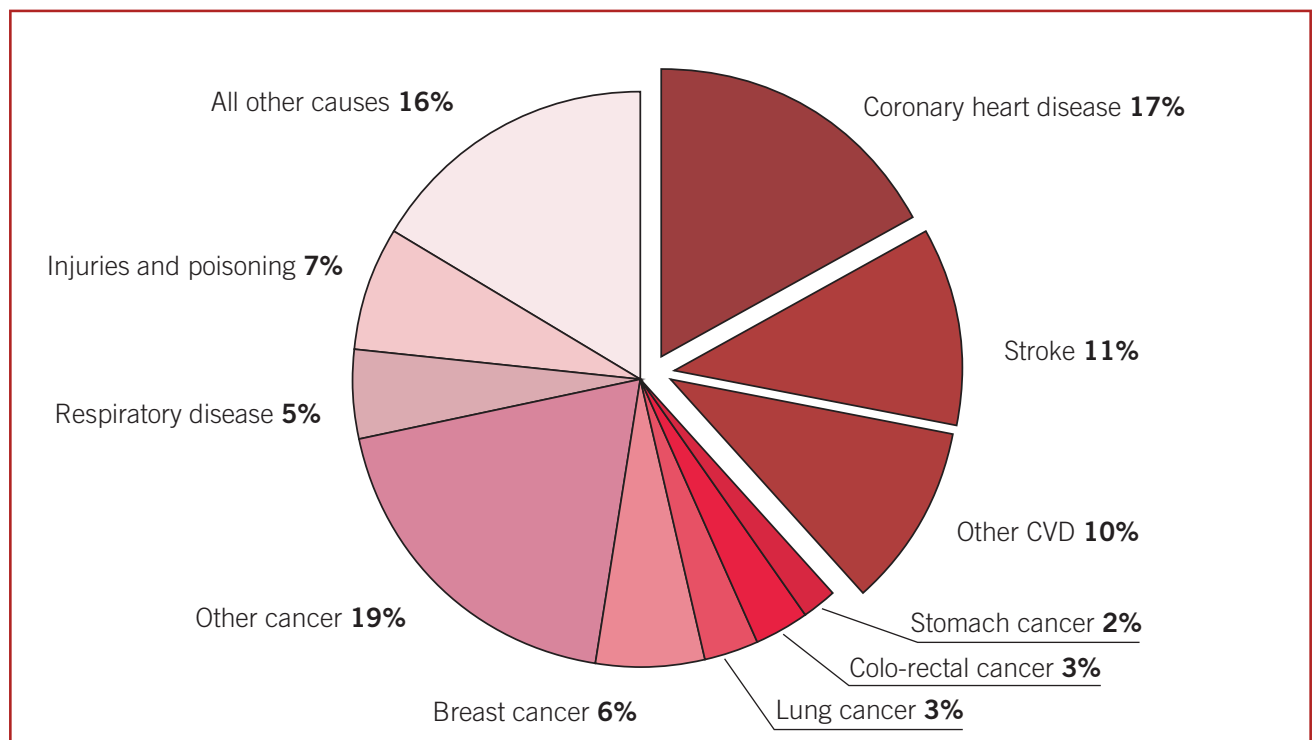


Figure 1.2c Deaths under 75 by cause, men, latest available year, EU

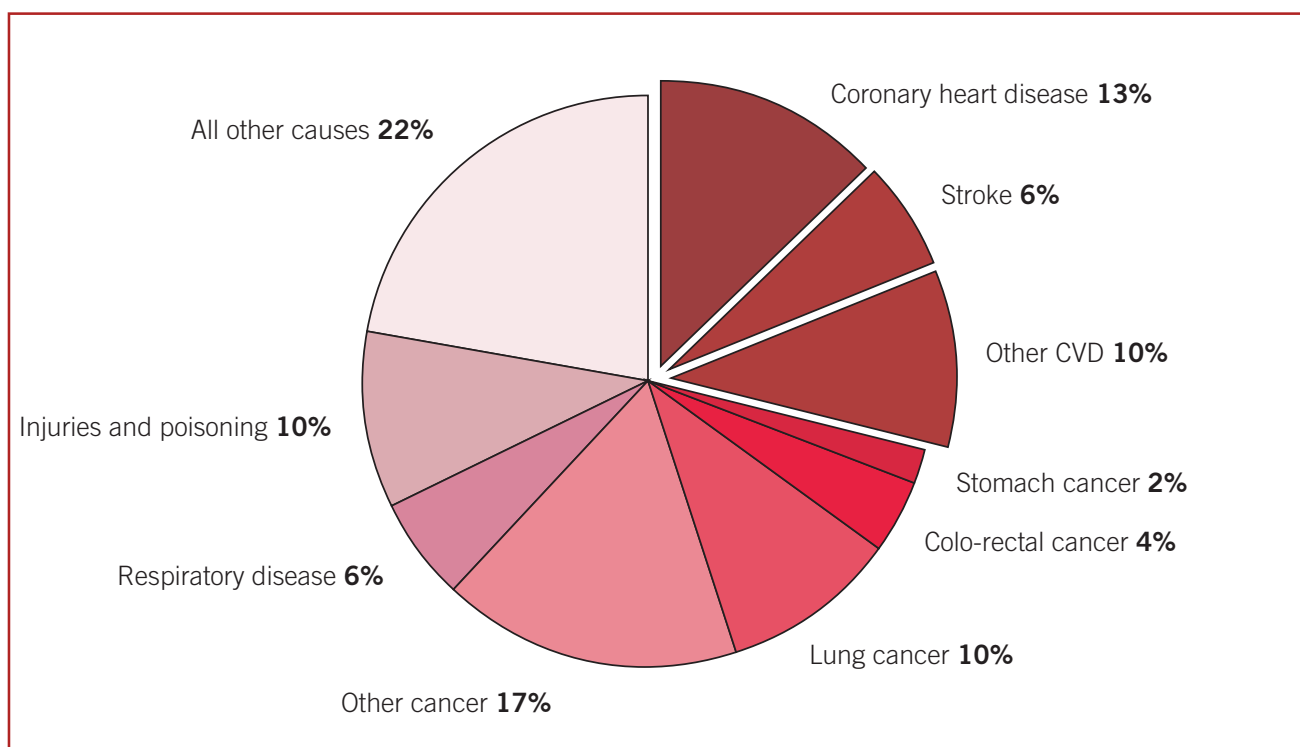


Figure 1.2d Deaths under 75 by cause, women, latest available year, EU

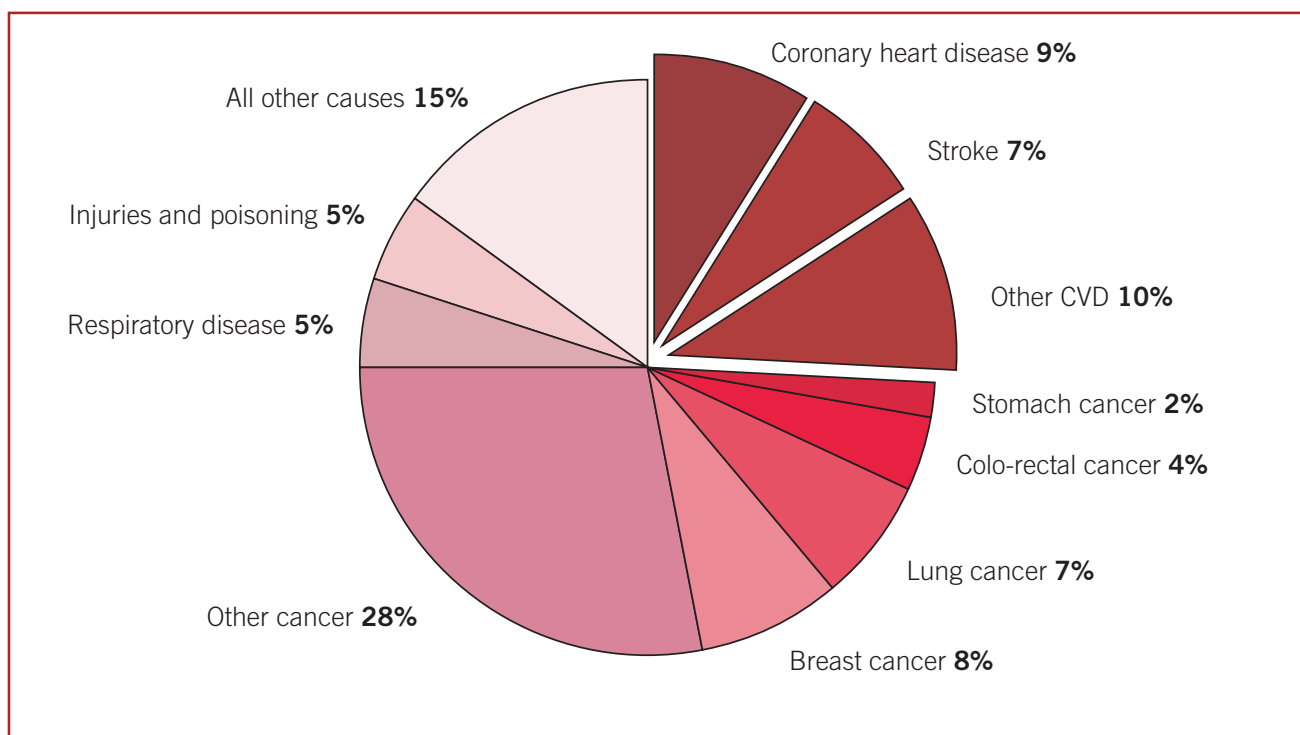


Table 1.3 Deaths under 65 by cause and sex, latest available year, Europe

Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other cancer	Respiratory disease	Injuries and poisoning	All other causes
Men												
Albania	3,448	515	223	349	117	25	163	0	400	172	681	803
Armenia	5,347	1,313	305	225	112	61	387	1	635	246	725	1,337
Austria	9,047	1,135	203	506	109	235	820	2	1,636	248	1,525	2,628
Azerbaijan	11,751	1,267	930	2,134	147	47	229	4	973	731	1,561	3,728
Belarus	33,544	8,297	2,422	1,685	617	363	1,380	0	2,793	1,357	9,381	5,249
Belgium	12,219	1,239	368	872	113	304	1,379	3	2,177	655	2,612	2,497
Bosnia and Herzegovina	9,380	1,226	713	993	193	134	757	0	941	274	1,527	2,622
Bulgaria	18,586	2,333	1,827	3,771	294	418	1,479	7	2,242	812	2,252	3,151
Croatia	7,522	1,112	469	559	162	249	866	7	1,242	190	1,216	1,450
Cyprus	707	143	18	38	10	13	54	1	99	26	152	153
Czech Republic	17,563	2,637	734	1,712	252	684	1,515	8	3,000	908	2,998	3,115
Denmark	3,078	572	292	526	77	215	215	2	1,315	267	966	2,253
Estonia	7,059	410	123	427	58	53	150	2	299	109	834	596
Finland	7,509	1,139	285	618	94	126	388	2	962	204	1,993	1,698
France	73,854	4,317	1,795	4,685	800	1,936	8,843	59	15,829	1,893	12,627	21,070
Georgia	8,686	807	820	1,692	87	99	275	0	706	141	1,083	3,016
Germany	90,078	10,539	2,563	8,004	1,463	2,794	7,993	33	16,626	3,456	10,910	25,697
Greece	12,423	2,508	616	675	212	217	1,591	0	2,041	619	2,138	1,806
Hungary	24,995	4,017	1,327	2,193	354	871	2,812	7	3,899	1,012	3,309	5,194
Iceland	239	29	10	17	3	10	22	49	6	6	60	34
Ireland	4,238	610	110	201	57	145	300	1	749	159	1,139	767
Israel	5,192	429	126	277	81	134	350	8	814	210	1,843	1,843
Italy	51,213	5,416	1,794	4,008	1,210	1,929	5,464	45	11,178	1,232	7,704	11,233
Kazakhstan	47,243	6,081	3,552	5,679	727	312	1,382	0	2,587	2,713	12,423	11,787
Kyrgyzstan	12,081	1,565	1,111	563	218	45	190	2	514	857	2,507	4,509
Latvia	5,823	1,176	361	681	93	79	299	2	601	214	1,330	987
Lithuania	9,067	1,494	465	727	145	120	413	4	912	345	2,711	1,731
Luxembourg	490	44	21	39	3	14	57	0	81	24	127	80
Malta	389	68	15	16	4	18	42	90	12	12	59	65
Malta	43	6	2	6	0	1	9	0	10	0	4	5
Montenegro	999	82	36	260	7	8	87	93	45	45	120	261
Netherlands	14,759	1,292	447	1,340	251	656	1,708	6	3,364	562	1,789	3,344
Norway	4,330	495	120	228	50	176	349	0	741	188	960	1,023
Poland	82,203	8,114	4,345	11,418	1,301	1,693	6,733	26	10,303	2,933	15,219	20,118
Portugal	12,983	763	646	528	407	461	1,027	5	2,404	575	1,809	4,358
Republic of Moldova	11,793	1,935	934	468	161	468	464	9	1,048	865	2,480	3,278
Romania	48,930	7,068	4,009	4,505	885	956	3,877	18	6,581	2,982	7,527	10,522
Russian Federation	564,175	107,136	40,460	52,865	9,101	5,824	20,794	116	37,416	29,775	152,507	108,181
San Marino	19	1	0	3	1	0	1	0	7	0	6	0
Serbia	15,281	1,962	1,148	1,914	234	465	1,780	10	2,125	487	1,812	3,344
Slovakia	10,966	1,884	641	857	156	336	689	4	1,669	570	1,892	2,268
Slovenia	2,862	298	116	169	71	111	259	1	529	45	639	624
Spain	43,868	4,110	1,446	2,851	910	1,709	5,569	23	8,720	2,250	6,024	10,256
Sweden	7,527	1,066	224	528	91	256	411	2	1,376	227	1,526	1,820
Switzerland	6,539	732	133	454	90	209	653	4	1,352	191	1,309	1,412
Tajikistan	7,794	925	321	752	119	43	61	0	424	771	1,193	3,185
TMYR Macedonia	3,337	504	353	279	71	71	283	0	433	84	316	915
Turkmenistan	11,487	1,523	262	1,593	89	28	99	0	478	2,241	1,772	3,402
Ukraine	157,914	33,866	10,486	11,372	2,655	2,125	5,837	42	12,779	6,658	33,425	38,669
United Kingdom	60,917	9,401	1,935	3,565	612	1,907	4,378	26	11,619	3,766	9,091	14,617
Uzbekistan	39,743	6,101	2,680	4,342	435	136	447	1	1,947	4,523	7,107	12,024
Total EU	633,353	73,793	26,726	55,460	10,032	18,256	58,843	287	110,301	26,105	100,902	152,648
Total Europe	1,601,240	251,702	94,342	144,169	25,537	28,941	95,708	491	180,808	78,820	335,997	364,725

Table 1.3 continued...

Year	All causes	Coronary heart disease	Stroke	Other CVD	Stomach cancer	Colo-rectal cancer	Lung cancer	Breast cancer	Other Respiratory disease	Injuries and poisoning	All other causes
2004	1,798	171	169	202	62	20	53	93	95	227	451
2009	2,599	340	137	134	44	65	94	277	101	137	732
2010	4,566	177	219	219	69	148	434	449	1,101	140	439
2007	6,529	430	700	1,086	73	66	56	187	860	536	413
2009	12,149	2,257	1,260	685	297	44	128	636	1,764	468	2,086
2005	6,567	311	296	438	42	225	550	840	1,231	308	910
1991	4,528	431	493	693	81	79	110	200	629	121	326
2008	8,104	605	922	1,579	162	293	260	605	1,514	325	1,324
2009	3,062	251	275	222	73	135	201	279	700	69	596
2009	325	19	12	22	7	10	16	48	77	15	31
2009	8,023	678	357	710	138	318	557	546	2,006	405	731
2006	4,236	163	197	190	45	184	533	428	864	223	330
2009	1,167	90	55	137	36	34	43	91	240	21	178
2009	3,385	186	156	193	47	118	190	324	693	101	566
2008	34,971	798	1,038	1,943	338	1,260	2,867	4,245	7,684	779	4,141
2009	4,104	244	414	703	56	54	54	246	608	82	213
2010	47,353	2,470	1,622	3,255	798	1,762	4,461	5,110	10,447	2,030	3,458
2009	5,213	563	285	303	95	143	338	586	1,315	306	386
2009	11,675	1,232	619	909	197	480	1,322	881	2,158	544	846
2009	119	1	2	4	0	4	13	11	35	9	21
2009	2,428	157	92	106	29	80	195	274	560	106	307
2008	3,071	107	72	134	57	127	137	385	754	101	196
2008	27,800	1,166	1,114	1,643	706	1,382	1,984	3,936	7,344	663	1,802
2009	22,390	1,877	2,407	2,552	314	299	260	871	2,401	1,222	3,304
2009	6,349	553	721	256	83	56	32	169	532	492	700
2009	2,537	295	209	234	70	54	50	190	486	88	310
2009	3,459	396	225	279	85	82	82	255	623	105	562
2009	251	7	8	18	6	7	20	27	59	15	40
2010	213	13	10	15	1	11	12	29	75	7	29
1987	19	0	0	6	0	0	1	1	3	2	4
2009	576	34	30	145	6	10	45	43	75	16	127
2010	10,365	388	362	614	117	515	1,388	1,331	2,404	481	712
2009	2,566	112	74	88	33	146	248	225	599	141	584
2009	33,968	1,981	2,064	3,539	528	1,094	2,731	2,416	7,878	1,235	2,811
2009	6,023	204	345	257	195	292	279	659	1,236	256	455
2010	5,610	826	614	275	85	120	75	258	645	248	592
2010	21,239	2,237	2,046	1,905	298	594	760	1,393	4,124	1,188	1,656
2009	226,002	32,190	22,303	21,411	4,558	5,677	3,040	12,034	27,451	9,341	50,833
2005	16	0	0	2	2	1	1	2	8	0	0
2009	7,853	608	724	840	137	284	593	717	1,644	286	477
2009	4,615	536	289	338	93	171	191	305	1,037	234	346
2009	1,177	53	59	42	23	61	99	120	19	141	240
2009	19,554	699	797	1,127	401	1,009	1,325	2,244	4,883	869	1,543
2010	4,646	292	169	188	56	183	441	466	1,135	163	516
2007	3,755	126	104	199	53	163	373	427	857	101	463
2005	5,174	430	274	591	74	22	37	81	387	693	406
2003	1,770	202	248	183	35	41	36	135	294	56	64
1998	6,943	633	185	1,213	52	47	26	73	345	1,691	672
2009	67,191	13,379	6,179	3,889	1,355	1,867	862	4,330	9,098	2,005	7,087
2009	39,015	2,334	1,523	2,030	270	1,348	3,367	4,190	8,482	2,836	2,817
2005	24,836	2,799	1,686	3,080	318	121	161	575	1,938	3,453	2,149
Total EU	312,875	18,128	15,048	22,233	4,852	11,858	24,495	31,988	69,976	13,462	74,275
Total Europe	731,884	76,129	54,119	60,826	12,700	21,306	31,131	54,243	122,396	34,791	83,879

Source: WHO Global Mortality Database <http://www.who.int/healthinfo/morttables/en/index.html>

Figure 1.3a Deaths under 65 by cause, men, latest available year, Europe

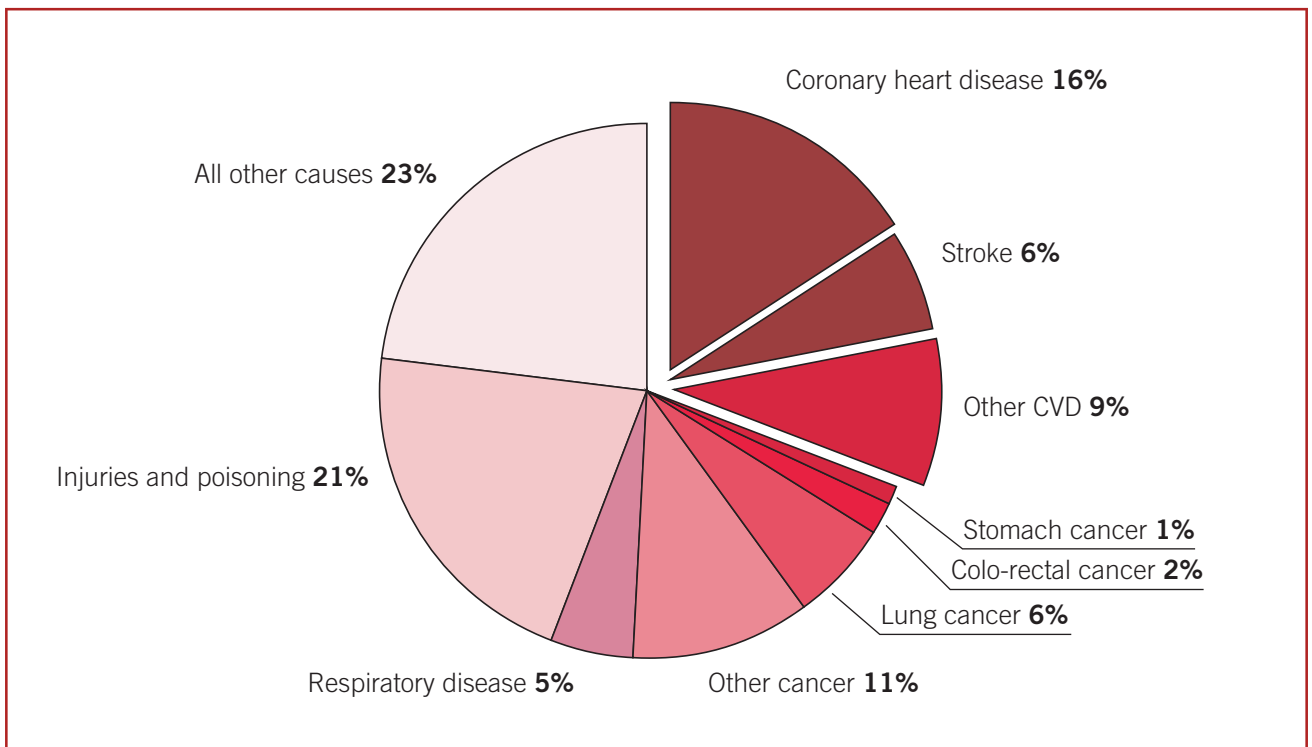


Figure 1.3b Deaths under 65 by cause, women, latest available year, Europe

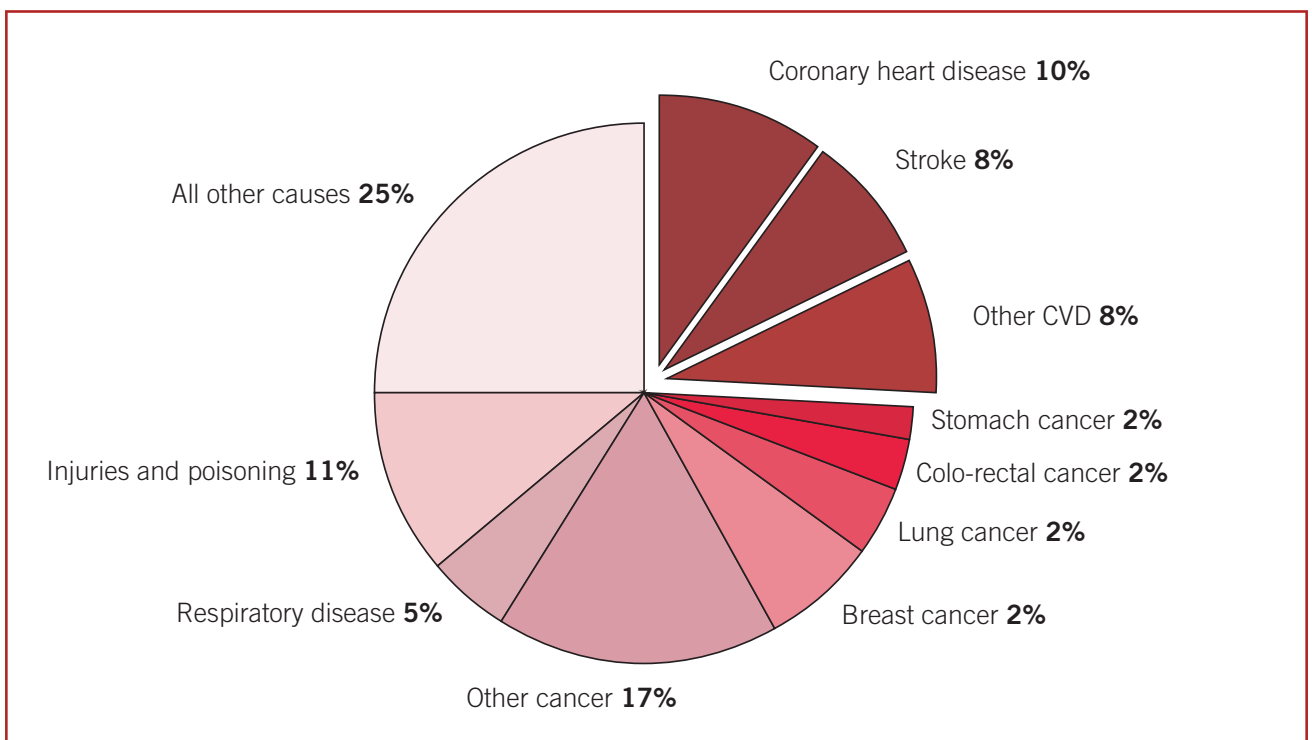


Figure 1.3c Deaths under 65 by cause, men, latest available year, EU

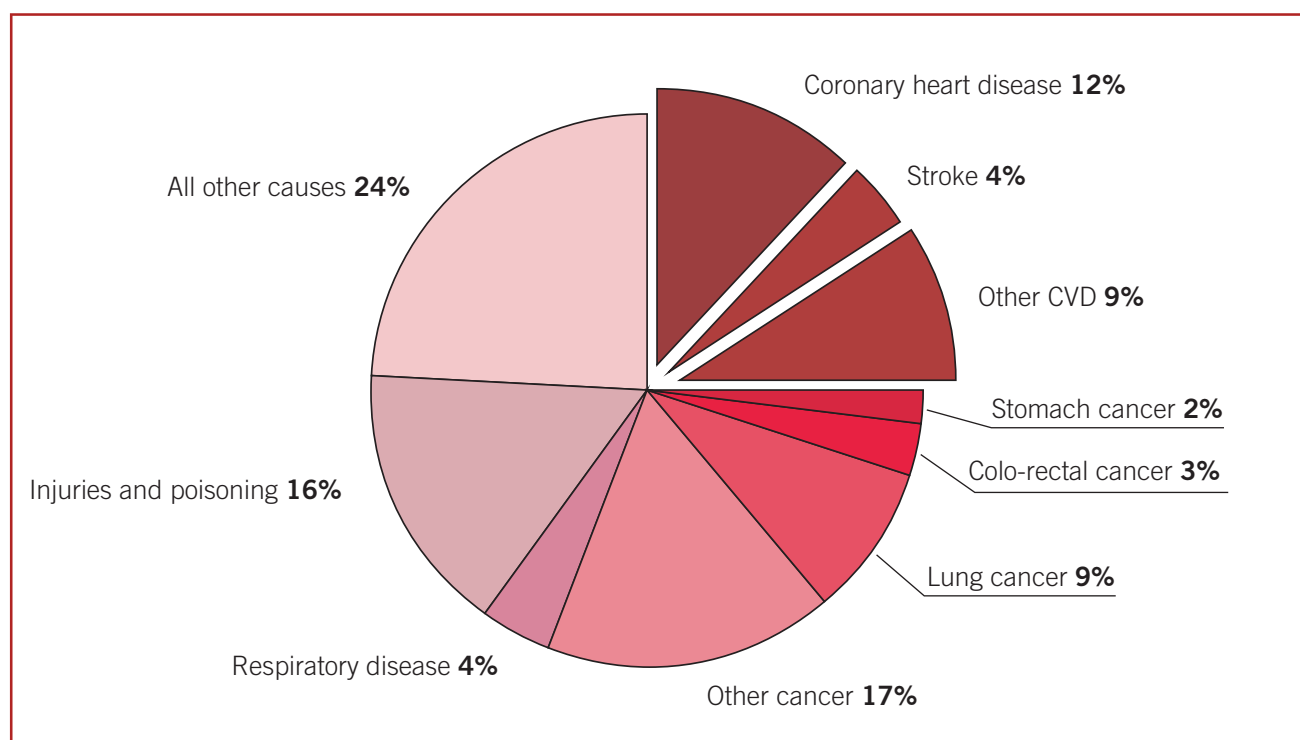


Figure 1.3d Deaths under 65 by cause, women, latest available year, EU

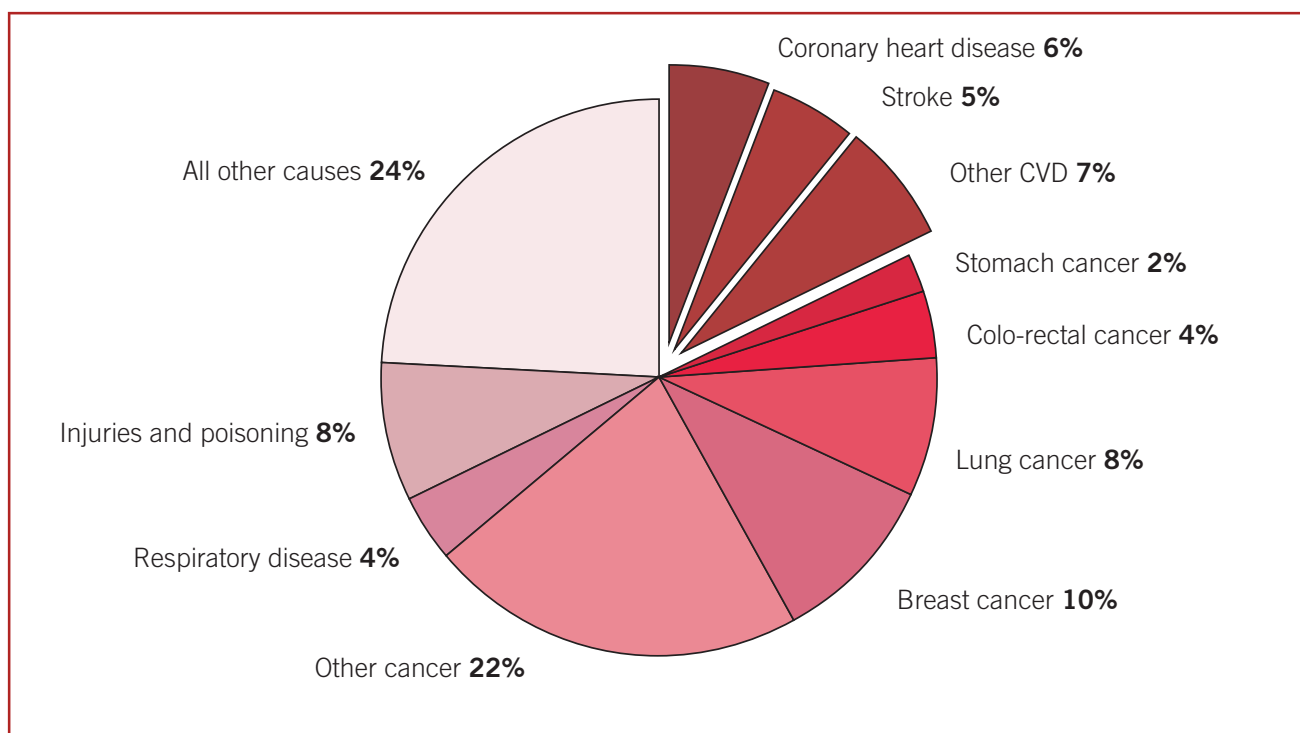


Table 1.4 Age standardized death rates from CHD, adults aged under 65, by sex, 1980 to 2010, Europe (deaths per 100,000)

Men	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010			
Albania							36	37	42			38	34	30	35	42	36	37	40	40	39	41	45	48										
Armenia	104	108				107	113	100	119	127	137	143	145	145	143	134	134	125	123	115	114	121	120	117										
Austria	83	85	85	84	79	77	74	73	67	64	61	63	61	58	58	57	55	55	51	48	47	43	38	33	30	30	30	30	27	28	29			
Azerbaijan	151	153				152	150	161	171	161	188	209	197	219	191	203	199	190	179	173	175	158	155	156	139									
Belarus	137	139				153	136	141	137	146	150	159	164	198	201	216		207	215	219	207	222	233	234										
Belgium	77	73	73	70	65	62	57	52	47	43	40	38	38	40	37	38	37	36	34	34					27									
Bosnia and Herzegovina																																		
Bulgaria	77	71	78	80	83	83	84	83	83	85	89	91	91	105	100	105	94	101	95	87	84	83	84	82	80	81	74	70	64					
Croatia																																		
Cyprus																																		
Czech Republic																																		
Denmark																																		
Estonia	170	158				175	171	163	156	164	174	173	179	203	214	195	161	140	167	137	137	136	126	123	104	102	91	85	75					
Finland	39	38	38	36	37	37	36	33	32	29	28	27	26	25	24	23	23	22	22	21	21	20	19	17	17	16	16	15						
France	141	132				128	120	134	153	150	150	161	174																					
Georgia																																		
Germany	54	52	55	54	53	56	53	56	54	53	53	52	52	50	50	51	52	54	53	54	51	53	50	52	55	50	49	52	47	48				
Greece	130	141	143	141	139	140	136	135	133	136	139	141	143	131	132	123	117	118	119	108	99	94	97	105	97	105	97	94	87	88				
Hungary	117	97	137	107	100	78	83	87	57	60	63	51	64	62	51	42	45	34	48	39	31	34	33	39	30	21	29	26	21					
Iceland	142	140	136	143	135	132	127	126	113	110	103	101	88	94	86	83	78	71	71	62	60	53	52	46	44	39	35	40	34	34				
Ireland	89	89	90	79	77	69	76	71	61	53	50	52	51	47	44	43	33	31	34	30	28	27	25	21	20	19	20	18						
Israel	62	60	58	58	54	53	51	49	45	44	41	41	39	38	36	34	32	31	31	28	27	25	24	24	21	19	19							
Italy	145	144				146	129	135	132	134	143	143	150	178	187	215	220	207	209	194	207	200	204	202	188	193	182	176	157	126				
Kazakhstan	111	112				103	98	107	105	105	103	104	109	135	158	152	153	136	132	119	123	127	124	130	128	127	139	136	121	144				
Kyrgyzstan	187	184	169	180	187	191	159	169	166	172	191	191	225	264	285	246	194	174	177	156	156	164	148	145	156	161	157	137	129					
Latvia	126	133				150	137	145	140	149	167	168	181	198	195	179	155	131	122	125	116	130	126	128	132	146	145	142	134	116				
Lithuania	85	93	111	86	91	78	74	73	58	56	54	47	52	51	48	47	54	37	36	29	35	33	35	28	31	28	36	22	29					
Luxembourg	130	107	108	117	88	78	92	80	91	77	72	57	71	66	58	49	46	53	54	50	44	46	44	42	38	45	36	32	40	26	32			
Malta	92	89	86	83	80	81	78	71	66	64	58	55	50	48	46	44	43	39	38	35	34	28	27	28	22	22	20	18	17	16	15			
Netherlands																																		
Norway	93	88	90	89	97	102	107	110	106	112	112	116	109	99	90	88	85																	
Poland	48	45	40	41	45	41	39	40	41	37	38	41	38	39	33	33	33	30	31	29	26	26	29	29										
Portugal	123	127				129	112	108	97	95	108	113	105	116	140	148	136	136	120	139	134	124	126	130	132	146	134	130	125	128	138			
Republic of Moldova	62	67	66	72	72	76	76	80	76	75	85	91	102	111	110	113	117	115	106	100	96	97	97	96	90	86	86	82	81	78	75			
Romania	169	163	163	167	173	162	146	150	147	152	161	161	178	231	267	239	214	192	188	208	224	232	244	251	243	242	215	198	197	186				
Russian Federation																																		
San Marino																																		
Serbia																																		
Slovenia																																		
Slovakia																																		
Slovenia																																		
Spain	44	43	42	42	42	41	41	39	38	35	35	36	36	34	33	33	34	32	32	31	30	28	27	25	24	24	23	22						
Sweden																																		
Switzerland																																		
TFYR Macedonia																																		
Tajikistan	99	91																																
Tajikistan	148	143																																
Turkmenistan	149	150																																
Ukraine	143	137	132	132	128	126	122	117	110	102	97	93	88	86	76	74	69	65	62	58														
United Kingdom	124	124	123																															
Uzbekistan																																		

Figure 1.4a Age-standardized death rates from CHD, men aged under 65, latest available year, Europe

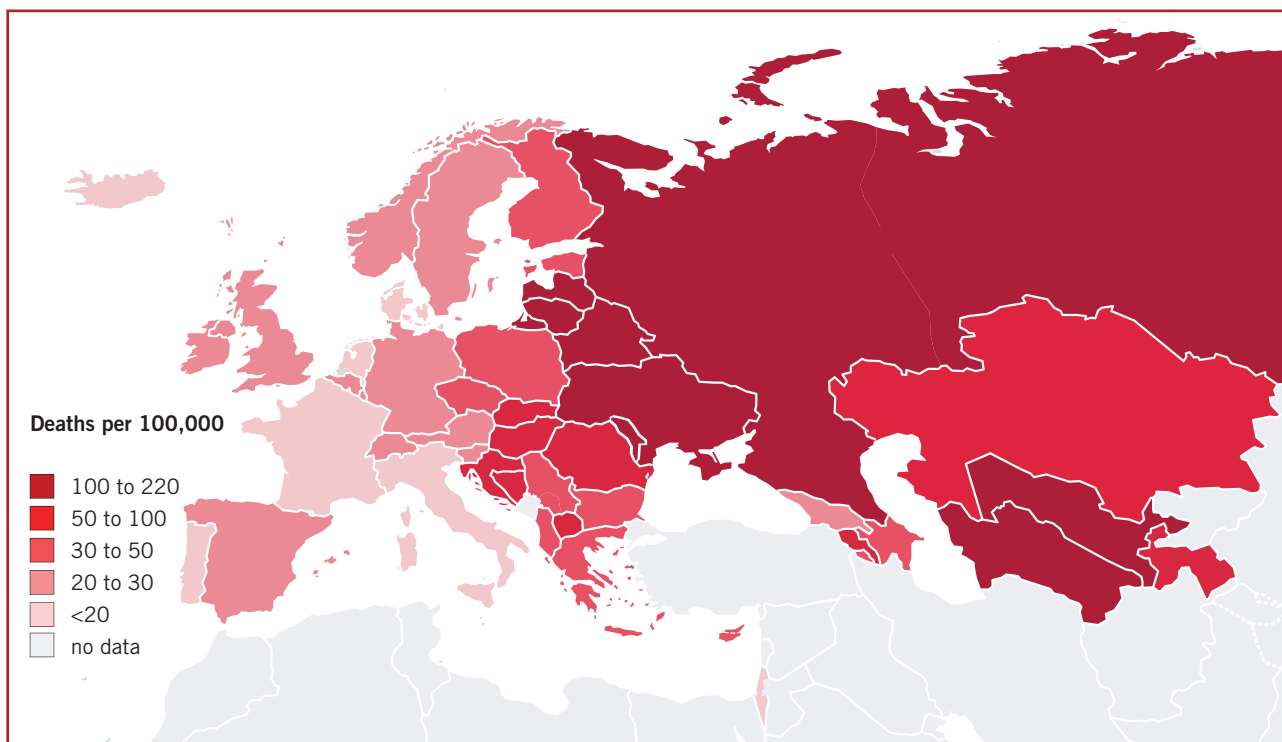


Figure 1.4b Age-standardized death rates from CHD, women aged under 65, latest available year, Europe

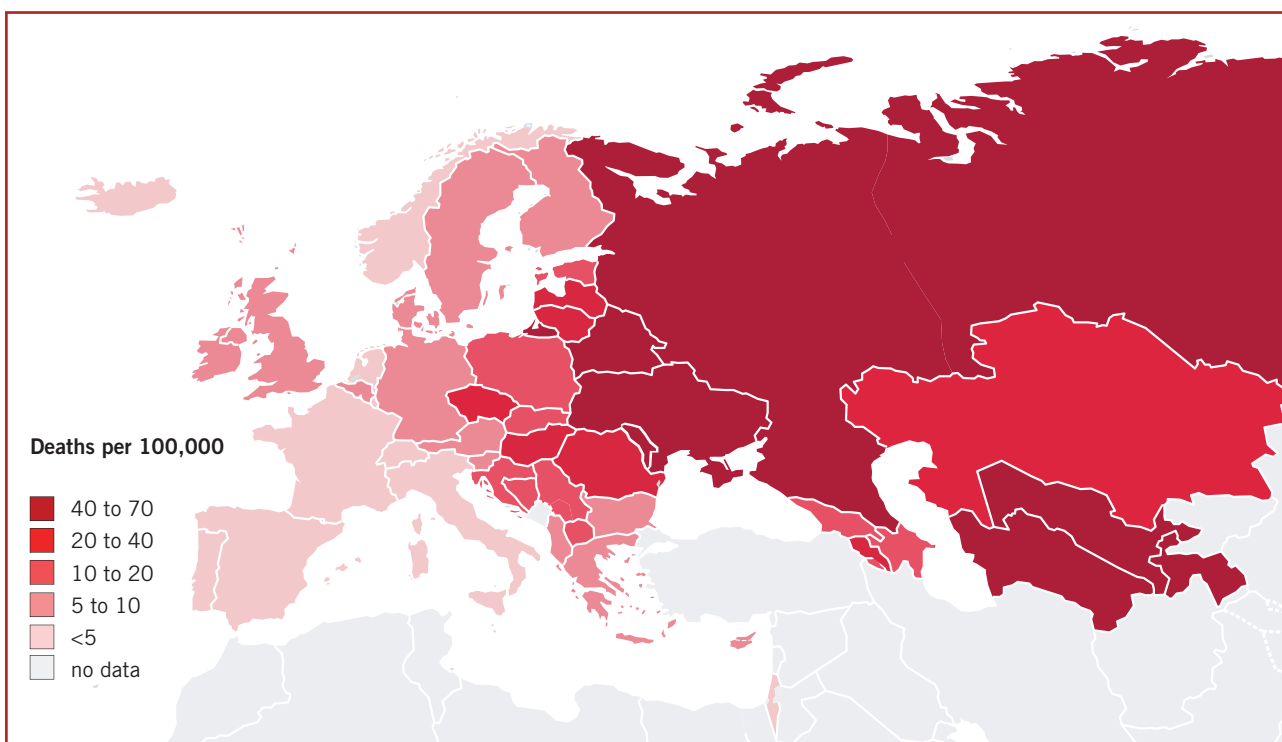


Figure 1.4c Death rates from CHD, men aged under 65, 1980 to 2010, selected countries

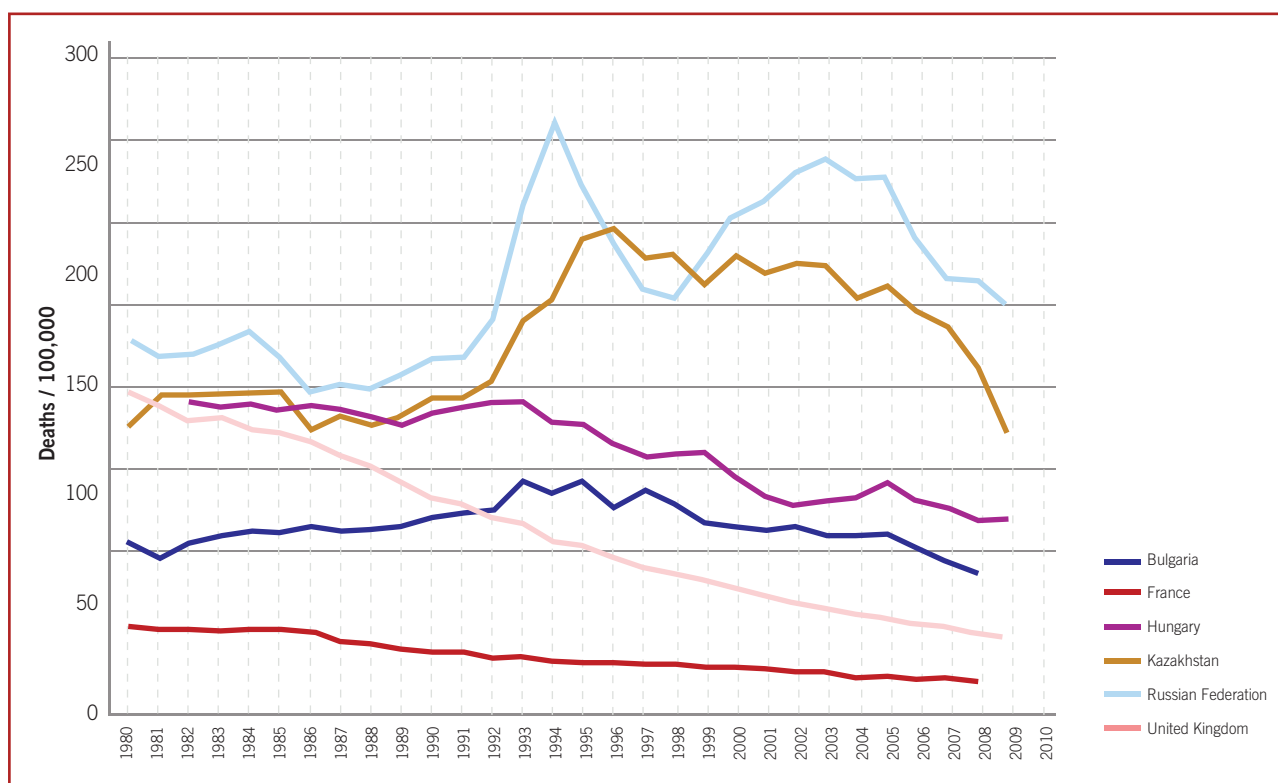


Figure 1.4d Death rates from CHD, women aged under 65, 1980 to 2010, selected countries

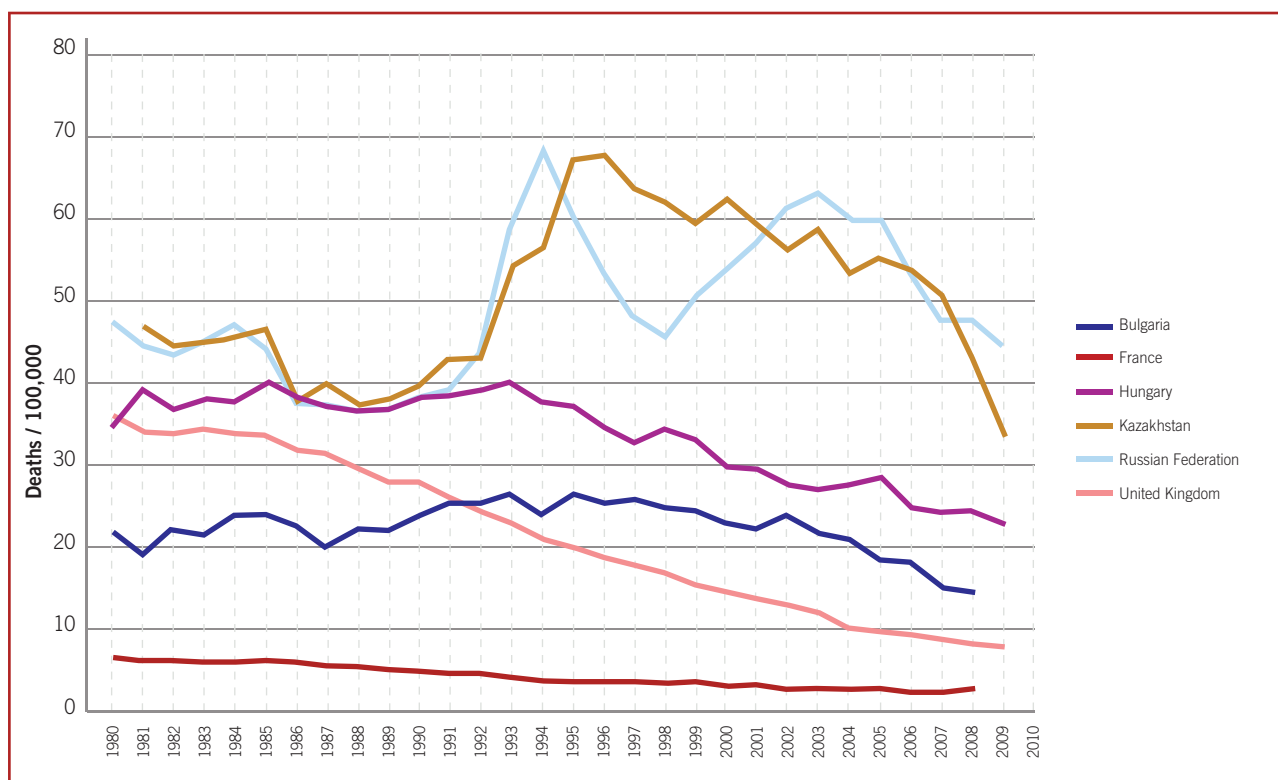


Table 1.5 Age standardized death rates from stroke, adults aged under 65, by sex, 1980 to 2010, Europe (deaths per 100,000)

Men	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010									
Albania						27	28	27	30	32	33	37	37	37	45	40	39	35	34	30	31	29	27	37	35		30		28	28										
Armenia	27	24	24	27	26	23	21	20	18	18	18	16	16	15	15	16	15	14	13	12	11	11	9	8	7	7	6	6	6	7	5									
Austria	58	58	58	57	53	56	53	57	53	44	45	44	50	54	50	49	53	47	41	39	41	34	36	38	39		45		64	62	62									
Azerbaijan	59	55	55	51	50	52	55	56	61	62	73	73	77	79	79	80	74	81	82	79																				
Belarus	19	18	18	18	17	15	15	13	13	12	13	13	12	11	11	10	11	11	9	10																				
Belgium																																								
Bosnia and Herzegovina																																								
Bulgaria	61	61	62	61	65	66	64	62	66	64	68	68	75	83	78	69	66	70	69	59	63	59	60	55	55	55	57	50	49											
Croatia						48	50	47	47	48	46	45	43	43	42	40	46	40	38	41	38	33	34	29	29	30	29	28	27	22										
Cyprus																				9	7																			
Czech Republic																																								
Denmark																																								
Estonia	54	49			62	54	47	59	53	63	63	60	68	66	68	66	60	52	53	52	55	50	45	48	41	41	37	30	26	22										
Finland						24	23	22	26	22	21	21	18	18	18	18	17	16	17	13	15	14	14	14	14	11	12	12	11	10										
France	20	19	19	18	18	17	15	14	13	13	12	11	12	10	10	10	9	10	8	8	8	8	8	8	7	7	7	7	7	7	6									
Georgia	70	77			80	73	65	69	69	69	69	74	72	66	69	62	63	67	69	64																				
Germany																																								
Greece	22	21	20	20	21	20	18	18	19	17	19	17	17	17	17	13	13	12	11	10	10	9	9	8	8	8	8	8	7	7	6									
Hungary	61	59	62	66	68	67	63	60	59	61	62	61	61	62	58	57	55	52	51	51	49	45	45	43	39	34	34	32	32	29										
Iceland	16	12	19	10	8	15	19	9	8	6	12	7	8	7	9	8	9	6	7	4	5	8	4	6	4	6	4	6	5	3	7									
Ireland	23	17	18	21	21	18	17	17	15	15	15	13	11	14	12	12	11	11	11	10	10	8	9	7	8	8	7	7	5	7	6									
Israel	25	24	23	22	21	20	19	17	16	15	15	15	15	15	13	13	13	13	10	8	9	9	7	7	8	8	6	6	5											
Italy	69	67			65	61	58	58	64	66	65	65	65	65	73	82	88	88	88	91	87	94	81	83	93	88	91	84	84	76	74									
Kazakhstan	84	80			77	70	68	67	71	75	79	84	98	114	126	106	107	104	104	110	110	110	105	107	108	107	112	107	112	94	105									
Kyrgyzstan	66	65	61	61	62	63	55	51	58	68	64	67	81	86	78	72	65	62	56	56	60	62	55	55	55	53	48	42	40											
Latvia	41	39			41	38	40	33	40	41	41	42	47	45	43	37	38	34	31	30	36	33	35	36	36	36	38	38	32	36										
Lithuania	25	28	20	29	31	30	25	24	21	20	21	17	15	12	18	13	17	10	12	8	10	16	13	16	9	7	8	4	10											
Luxembourg	32	26	32	33	19	22	29	38	16	15	10	20	16	16	10	12	14	8	8	8	7	13	12	8	6	8	8	6	7	6										
Malta	15	14	14	12	14	12	11	11	11	11	11	10	10	11	10	10	10	10	9	9	9	9	9	8	7	7	6	6	6	5										
Netherlands																																								
Norway																																								
Poland	28	24	24	25	27	29	30	30	30	31	32	32	32	32	31	31	29																							
Portugal	53	50	45	45	43	41	41	36	37	34	35	37	35	34	30	29	29	28	26	24	25	24	22	20																
Republic of Moldova	52	52			69	58	56	54	54	65	68	63	71	80	85	83	84	74	81	83	82	77	79	77	79	77	80	71	68	66	66									
Romania	44	45	44	46	47	48	47	52	49	48	50	51	54	70	73	74	77	79	73	66	62	64	65	62	57	56	53	49	46	45	42									
Russian Federation	72	73	71	72	75	72	65	64	64	66	67	71	87	103	97	90	85	82	90	98	100	103	104	101	99	87	78	76	71											
San Marino																																								
Serbia																																								
Slovakia																																								
Slovenia																																								
Spain	24	24	22	21	21	19	18	18	18	16	15	14	14	13	13	13	12	12	11	10	10	10	9	9	9	9	9	9	8											
Sweden																																								
Switzerland																																								
TFYR Macedonia																																								
Tajikistan	49	48			40	39	42	40	40	40	40	41	46	45	38	35	28	23	16	20	19	19	30	31	25															
Turkmenistan	86	94			93	90	86	90	86	90	56	76	66	66	66	59	49	30	30																					
Ukraine	58	59			63	53	54	54	55	59	65	69	73	77	86	82	79	71	72	74	70	68	67	67	69	66														
United Kingdom	23	21	20	20	19	19	17	16	15	15	15	14	13	13	13	13	12	12	11	11	10	10	10	9	9	9	9	8	8											
Uzbekistan	65	68			66	62	62	61	63	64	65	62	61	61	75	72	73	69	58	52	55	57	58	54	48	58	54	48	56											

Figure 1.5a Age-standardized death rates from stroke, men aged under 65, latest available year, Europe

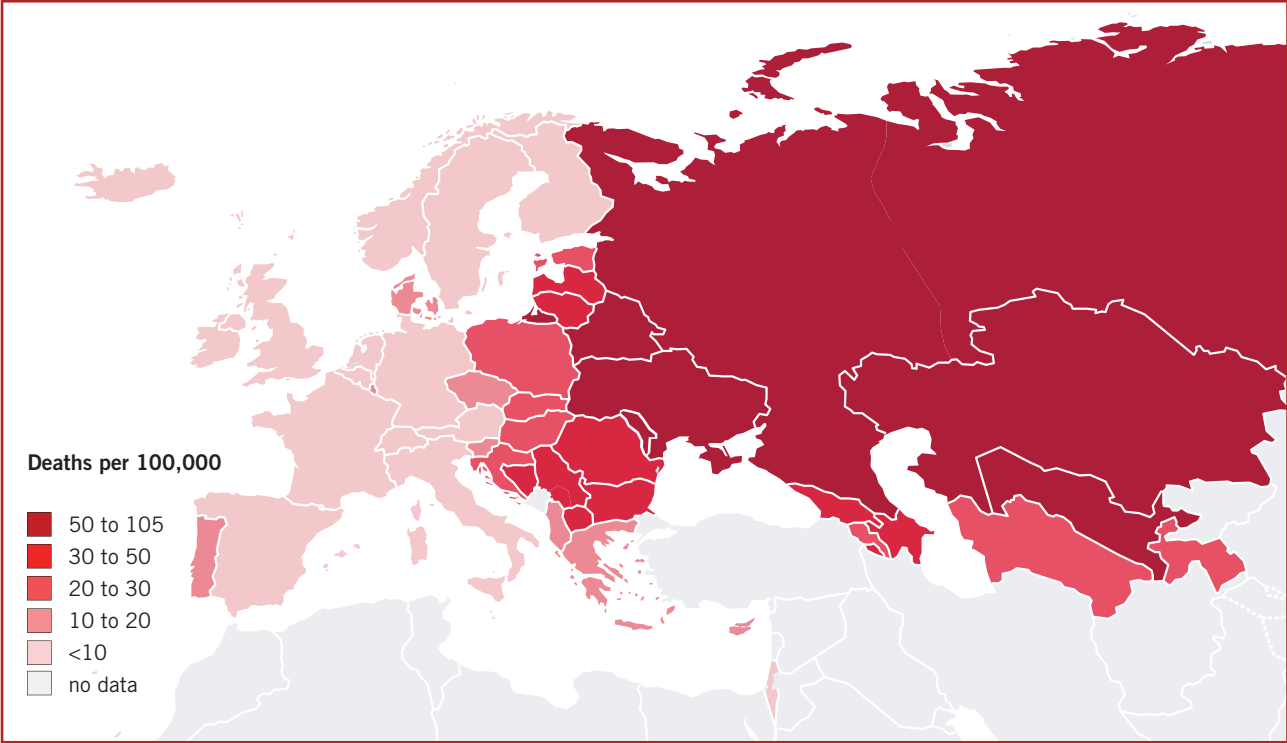


Figure 1.5b Age-standardized death rates from stroke, women aged under 65, latest available year, Europe

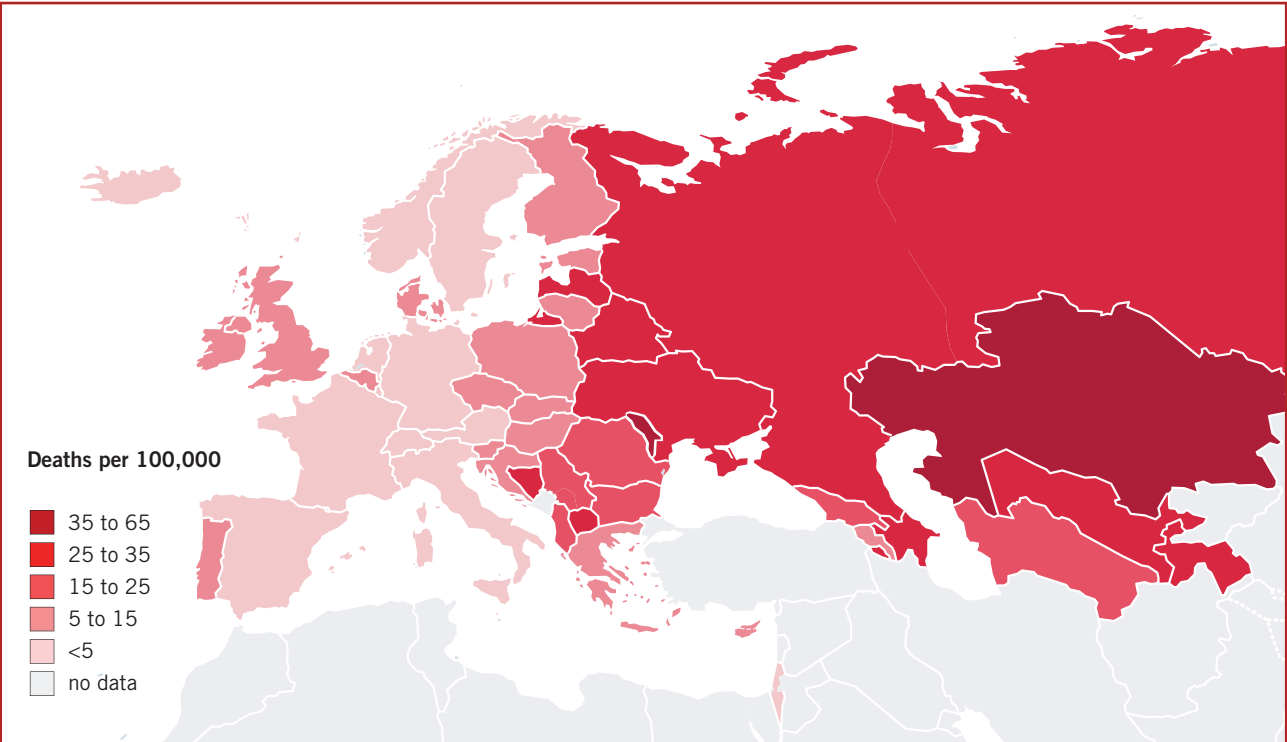


Figure 1.5c Death rates from stroke, men aged under 65, 1980 to 2010, selected countries

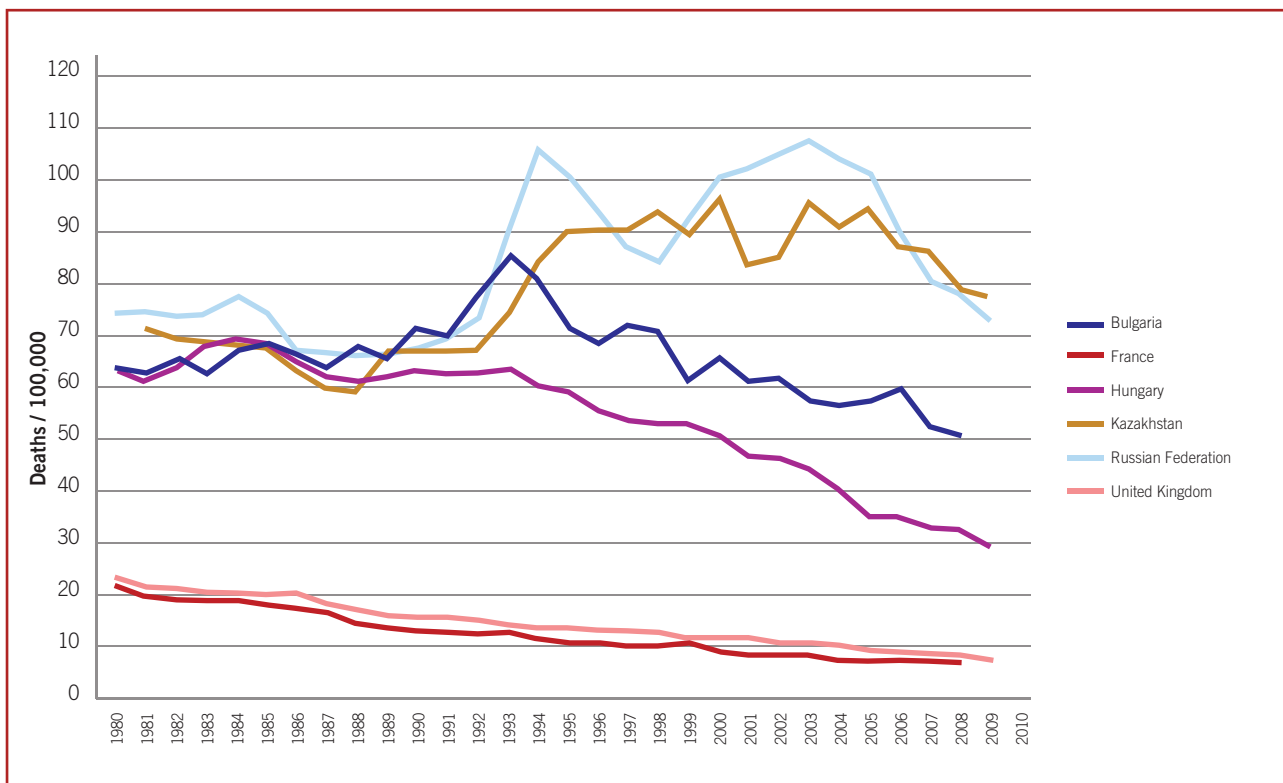


Figure 1.5d Death rates from stroke, women aged under 65, 1980 to 2010, selected countries

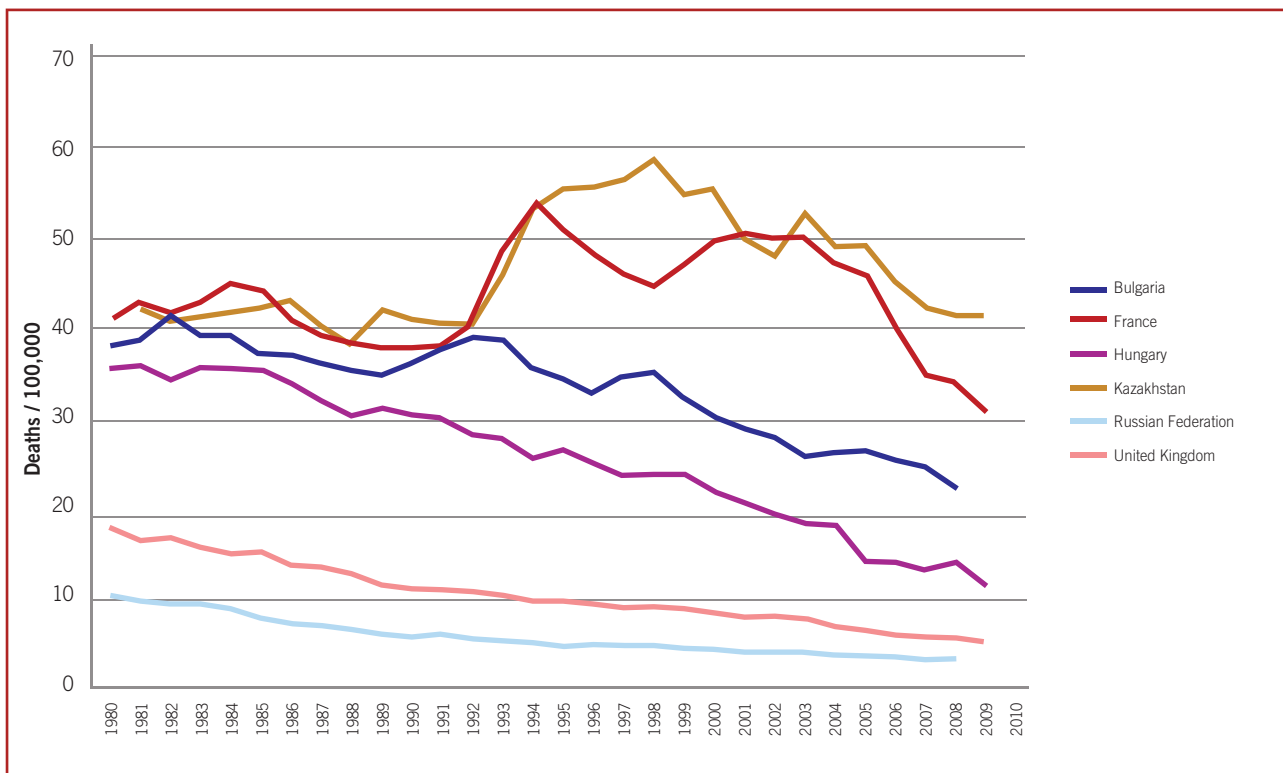


Table 1.6 Potential years of life lost by cause and sex, latest available year, Europe

		Men							Women						
		Years lost per 100,000 males, aged 0-69 years old and cause-specific percentage of total							Years lost per 100,000 females, aged 0-69 years old and cause-specific percentage of total						
	Year	All causes	CVD		CHD		Stroke	All causes	CVD		CHD		Stroke		
Austria	2010	4,315	684	16%	392	9%	82	2%	2,136	250	12%	87	4%	70	3%
Belgium	2005	4,914	764	16%	359	7%	116	2%	2,601	347	13%	95	4%	109	4%
Czech Republic	2010	5,473	1,242	23%	612	11%	169	3%	2,449	416	17%	139	6%	85	3%
Denmark	2006	4,705	714	15%	287	6%	157	3%	2,684	292	11%	82	3%	109	4%
Estonia	2010	8,819	2,187	25%	952	11%	253	3%	2,846	545	19%	167	6%	112	4%
Finland	2010	4,963	990	20%	475	10%	144	3%	2,164	262	12%	79	4%	76	4%
France	2008	4,847	583	12%	221	5%	101	2%	2,287	218	10%	42	2%	61	3%
Germany	2010	4,074	757	19%	355	9%	97	2%	2,191	286	13%	83	4%	66	3%
Greece	2009	4,627	1,122	24%	745	16%	176	4%	1,954	337	17%	162	8%	85	4%
Hungary	2009	8,920	2,269	25%	1,171	13%	404	5%	3,907	740	19%	319	8%	168	4%
Iceland	2009	3,219	708	22%	298	9%	118	4%	1,598	113	7%	12	1%	51	3%
Ireland	2010	3,798	675	18%	392	10%	84	2%	2,169	253	12%	84	4%	78	4%
Israel	2009	3,469	422	12%	203	6%	71	2%	2,002	159	8%	42	2%	41	2%
Italy	2009	3,486	584	17%	253	7%	98	3%	1,874	207	11%	52	3%	61	3%
Luxembourg	2009	3,917	636	16%	267	7%	111	3%	1,991	211	11%	46	2%	54	3%
Netherlands	2010	3,230	532	16%	210	7%	80	2%	2,249	251	11%	66	3%	70	3%
Norway	2010	3,456	541	16%	296	9%	88	3%	2,091	186	9%	67	3%	48	2%
Poland	2010	7,845	1,832	23%	604	8%	318	4%	2,953	522	18%	115	4%	151	5%
Portugal	2010	4,793	559	12%	226	5%	181	4%	2,206	221	10%	50	2%	91	4%
Russian Federation	2010	17,756	5,125	29%	2,552	14%	967	5%	6,136	1,565	25%	604	10%	428	7%
Slovakia	2010	7,326	1,784	24%	960	13%	303	4%	3,033	619	20%	250	8%	154	5%
Slovenia	2010	4,625	748	16%	363	8%	150	3%	2,158	258	12%	55	3%	113	5%
Spain	2009	3,884	620	16%	288	7%	107	3%	1,843	198	11%	49	3%	61	3%
Sweden	2010	3,112	541	17%	283	9%	69	2%	1,861	206	11%	84	5%	55	3%
Switzerland	2007	3,477	514	15%	261	8%	59	2%	2,037	186	9%	47	2%	45	2%
United Kingdom	2010	4,045	784	19%	445	11%	110	3%	2,500	309	12%	109	4%	77	3%

Source: OECD Health Data 2011 http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT#

Notes: The PYLL per 100 000 population are calculated by the OECD Secretariat based on age-specific death statistics provided by the World Health Organization. The total OECD population in 2010 is taken as the reference population for age standardisation.

2. Morbidity

In addition to being the largest contributor to mortality in Europe, CVD also makes a very large contribution to morbidity. Morbidity from CVD may be described using a number of different measurements, including hospital discharge rates, prevalence, incidence rates and case-fatality rates. Europe-wide data for each of these measures remains limited, however, and comparability of many estimates is relatively low.

Hospital discharge rates

Hospital discharge rates measure the number of patients who leave a hospital after receiving care. Hospital discharge rates for cardiovascular diseases in Europe show very large variation between countries, which do not necessarily reflect the same patterns as mortality rates. The annual rate of discharges for CVD in Europe in 2008 and 2009 was just under 2,500 per 100,000 population. For specific diagnoses, the rates were just over 800 CHD discharges and 440 stroke discharges per 100,000 population. Europe-wide rates have been steady since around 2004, after substantial increases in the preceding two decades (Tables 2.4, 2.5 and 2.6).

In the EU, hospital discharge rates for all CVD combined were close to the European rates, at around 2,400 per 100,000 population. For CHD specifically, the most recent discharge rates in EU countries were around 80% of the overall European rates, at just over 600 per 100,000. Hospital discharge rates from stroke in the EU were around 10% lower than the European average, at just over 390 per 100,000.

Case fatality rates

Case fatality rates describe the percentage of people diagnosed with a given condition that die of the disease within a defined period of time.

Evidence from several European countries has demonstrated that a substantial proportion of the observed reductions in coronary heart disease mortality in recent decades has been due to reductions in case fatality rates¹⁻³. There remain large differences, however, even between high income European countries. Reported admission-based case fatality rates in 21 European OECD countries (Table 2.3) show more than three-fold differences in acute myocardial infarction (AMI) case fatality rates, from 2.3% in Denmark to 8.6% in Belgium.

Case fatality rates for stroke appear to have changed much less in recent decades and worldwide data show that although incidence of stroke has decreased in high income countries, case fatality rates have shown comparatively limited improvement⁴. In Europe, 30-day in-hospital fatalities for ischaemic stroke varied between 2.6% in Denmark and 9.7% in Slovenia. Case fatality rates for haemorrhagic stroke were substantially higher, varying between 6.5% in Finland up to 38.6% in Belgium. The median age-standardized case-fatality rates reported for AMI, ischemic stroke and haemorrhagic stroke, respectively, were 4.7%, 4.4% and 18.6%.

Years of life lost in disability and disability-adjusted life years lost

In 2004 the WHO Burden of Disease project synthesized data from WHO member states to make an estimate of the morbidity caused by different diseases⁵. The main measure of the burden of disease was the DALY (Disability Adjusted Life Year) – an aggregate of years of life lost due to premature death and years of healthy life lost due to disability. These estimates have not been updated since, and revisions will await the release of the Global Burden of Disease 2010 study in late 2012.

In developed European countries, 17% of all DALYs lost were due to CVD, making it the second largest single cause after neuropsychiatric disorders. In less developed European nations, the proportion of DALYs lost due to CVD exceeds that of neuropsychiatric disorders. In the EU, over 12 million DALYs are lost each year to CVD (Table 2.1, Figures 2.1a and 2.1b).

The highest morbidity rates for CVD appear in Eastern Europe and in countries of the former Soviet Union. The age-standardized rates of DALYs lost for CHD in Ukraine, Russia and Belarus are at least three times higher than rates in Spain, France and Italy. The situation is similar for stroke, where the rate of DALYs lost in Russia is nearly 1,800 per 100,000, compared to only 360 per 100,000 in the UK (Table 2.2, Figures 2.2a and 2.2b).

1 Smolina K, Wright FL, Rayner M, Goldacre MJ. Determinants of the decline in mortality from acute myocardial infarction in England between 2002 and 2010: linked national database study. *BMJ* 2012;344:d8059.

2 Mannsverk J, Wilsgaard T, Njolstad I, Hopstock LA, Lochen ML, Mathiesen EB, et al. Age and gender differences in incidence and case fatality trends for myocardial infarction: a 30-year follow-up. *The Tromso Study. Eur J Cardiovasc Prev Rehabil* 2011.

3 Sala C, Grau M, Masia R, Vila J, Subirana I, Ramos R, et al. Trends in Q-wave acute myocardial infarction case fatality from 1978 to 2007 and analysis of the effectiveness of different treatments. *Am Heart J* 2011;162(3):444-50.

4 Feigin VL, Lawes CM, Bennett DA, Barker-Collo SL, Parag V. Worldwide stroke incidence and early case fatality reported in 56 population-based studies: a systematic review. *Lancet Neurol* 2009;8(4):355-69.

5 World Health Organization. *World Health Report, 2004.*

Table 2.1 Disability-adjusted life years (DALYs) by cause, 2002, WHO Mortality Sub-Region, EU and Europe

	WHO MORTALITY SUB-REGION									
	EUR-A		EUR-B		EUR-C		EUROPE		EU-27	
	DALYs lost (000s)	% of total DALYs lost	DALYs lost (000s)	% of total DALYs lost	DALYs lost (000s)	% of total DALYs lost	DALYs lost (000s)	% of total DALYs lost	DALYs lost (000s)	% of total DALYs lost
Cardiovascular disease	8,837	17	8,175	22	17,405	29	34,416	23	12,129	19
Coronary heart disease	3,569	7	3,382	9	8,800	14	15,752	10	4,931	8
Stroke	2,653	5	2,522	7	5,618	9	10,793	7	3,675	6
Diabetes	1,105	2	566	1	522	1	2,192	1	1,288	2
Cancer	8,548	17	3,289	9	5,322	9	17,159	11	10,273	16
Lung cancer	1,668	3	620	2	956	2	3,243	2	2,053	3
Cancer of the colon and rectum	1,027	2	285	1	550	1	1,862	1	1,200	2
Breast cancer	939	2	277	1	487	1	1,703	1	1,061	2
Infectious diseases	888	2	2,171	6	2,562	4	5,621	4	1,135	2
Diarrhoeal diseases	110	0	485	1	97	0	692	0	133	0
Sexually transmitted diseases exc. HIV	79	0	149	0	125	0	353	0	121	0
HIV/AIDS	198	0	52	0	976	2	1,226	1	229	0
Respiratory infections	690	1	1,524	4	901	1	3,115	2	877	1
Neuropsychiatric disorders	13,720	27	7,055	19	8,562	14	29,338	20	16,024	25
Alcohol use disorders	2,226	4	636	2	1,799	3	4,660	3	2,631	4
Alzheimer and other dementias	1,987	4	398	1	549	1	2,934	2	2,121	3
Depression	4,113	8	2,626	7	2,598	4	9,337	6	4,923	8
Respiratory diseases	3,405	7	1,547	4	1,782	3	6,734	4	3,667	6
Digestive diseases	2,414	5	1,900	5	3,082	5	7,396	5	3,302	5
Musculo-skeletal (non-rheumatic) disease	2,195	4	1,513	4	1,924	3	5,632	4	2,824	4
Unintentional injuries	3,041	6	3,123	8	8,317	14	14,481	10	4,235	7
Road traffic injuries	1,233	2	641	2	1,732	3	3,606	2	1,514	2
Intentional injuries (e.g. suicide, violence)	1,039	2	935	2	4,489	7	6,462	4	1,435	2
ALL CAUSES	51,699	100	37,828	100	60,729	100	150,256	100	64,356	100

Notes: WHO mortality sub-regions: EUR-A, very low child and adult mortality; EUR-B, low child and adult mortality; EUR-C, low child, high adult mortality. Figures for EUR-A, EUR-B and EUR-C vary slightly from those reported in the World Health Report 2004. This is due to revisions of the estimates for HIV/AIDS, malaria, schistosomiasis and intestinal helminth infections.

Source: World Health Organization (2004) The World Health Report 2004. WHO: Geneva. www.who.int

Figure 2.1a Disability-adjusted life years lost by cause, 2002, Europe

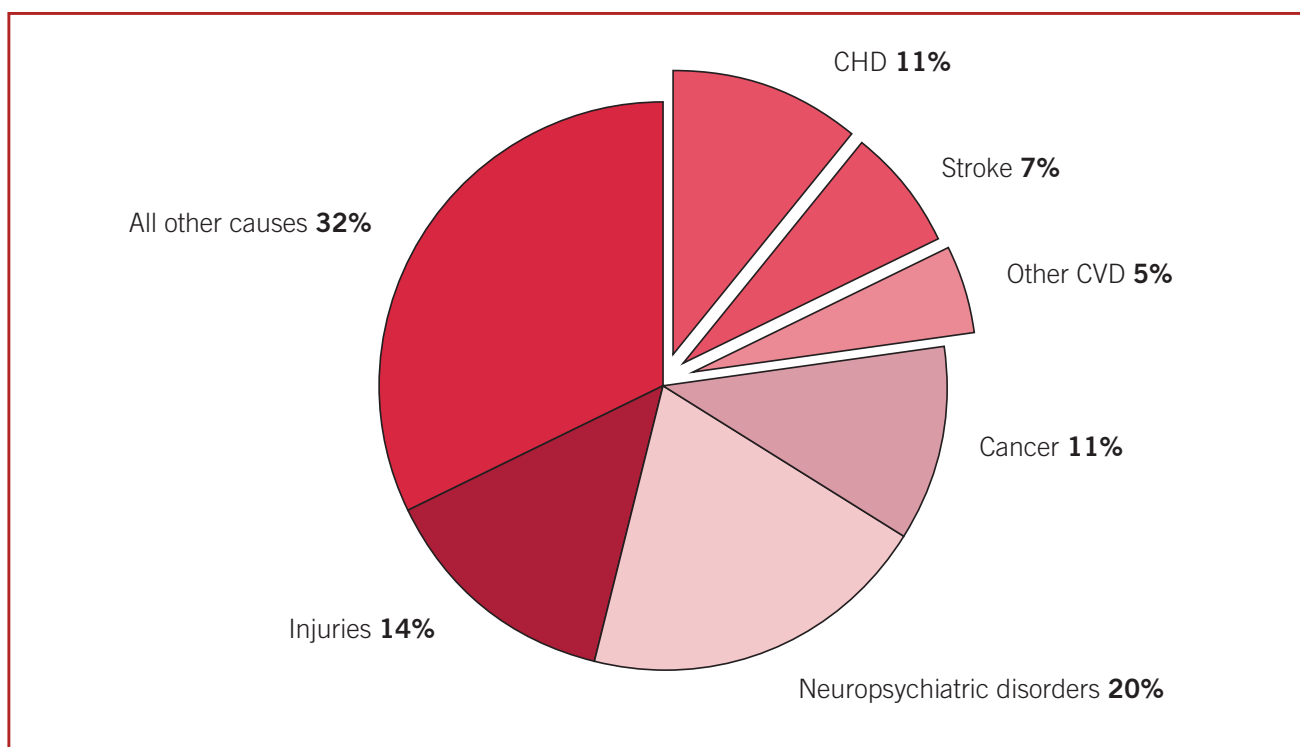


Figure 2.1b Disability-adjusted life years lost by cause, 2002, EU

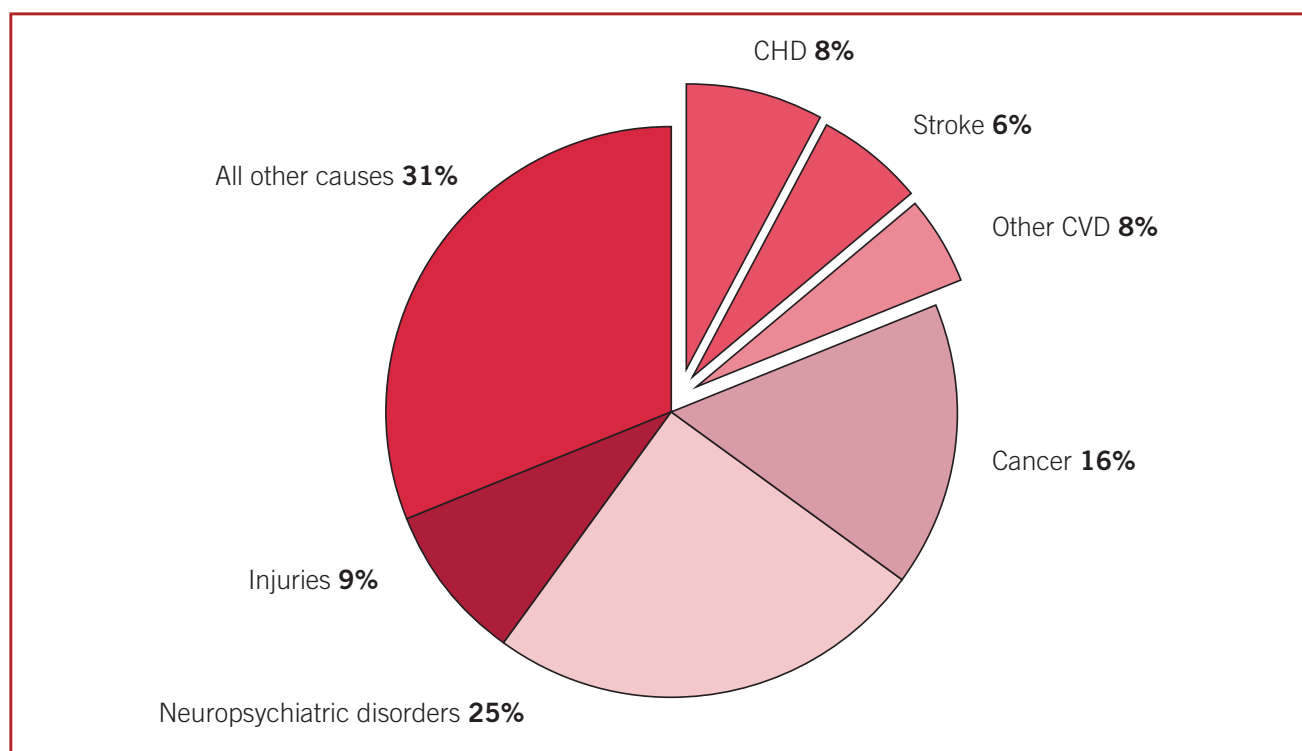


Table 2.2 Age-standardized DALYs rate for CHD, stroke and other CVD, 2002, Europe

	Age-standardised DALYs lost per 100,000		
	CHD	Stroke	Other CVD
Albania	1,107	1,006	884
Andorra*	313	271	266
Armenia	1,750	855	413
Austria	579	349	431
Azerbaijan	2,316	767	795
Belarus	2,497	1,239	543
Belgium	512	356	321
Bosnia and Herzegovina*	925	1,107	1,514
Bulgaria	1,344	1,188	1,485
Croatia	973	989	570
Cyprus	638	289	832
Czech Republic	945	629	452
Denmark	478	401	359
Estonia	1,449	819	714
Finland	687	411	299
France	259	271	360
Georgia	2,103	1552	504
Germany	574	338	481
Greece	620	592	454
Hungary	1,137	731	654
Iceland	470	278	176
Ireland	671	361	359
Israel	370	214	284
Italy	409	335	363
Kazakhstan	2,452	1,469	1,326
Kyrgyzstan	1,885	1,939	687
Latvia	1,606	1,102	803
Lithuania	1,444	620	608
Luxembourg	403	420	397
Macedonia, TFYR	838	1,066	1,043
Malta	709	365	235
Moldova	1,922	1,327	312
Monaco*	247	250	322
Netherlands	460	329	411
Norway	503	309	267
Poland	949	598	657
Portugal	431	836	301
Romania	1,176	1,162	793
Russian Federation	2,630	1,747	1,174
San Marino	431	282	689
Serbia and Montenegro	1,087	1,102	1,149
Slovakia	1,037	387	795
Slovenia	552	524	492
Spain	368	294	274
Sweden	506	300	284
Switzerland	380	200	318
Tajikistan	1,886	571	1,912
Turkey	1,332	1,132	790
Turkmenistan	2,860	620	2,825
Ukraine	2,539	1,207	633
United Kingdom	657	359	298
Uzbekistan	1,907	975	1,159

Source: World Health Organization (2004) *The World Health Report 2004*. WHO: Geneva.

Notes: The estimates should be interpreted as the best estimates of WHO, rather than the official viewpoint of member states. For details on age-standardisation, see source.

* accuracy of estimates is lower than for other countries, due to data quality.

Figure 2.2a Age-standardized DALYs rate for CHD, 2002, Europe

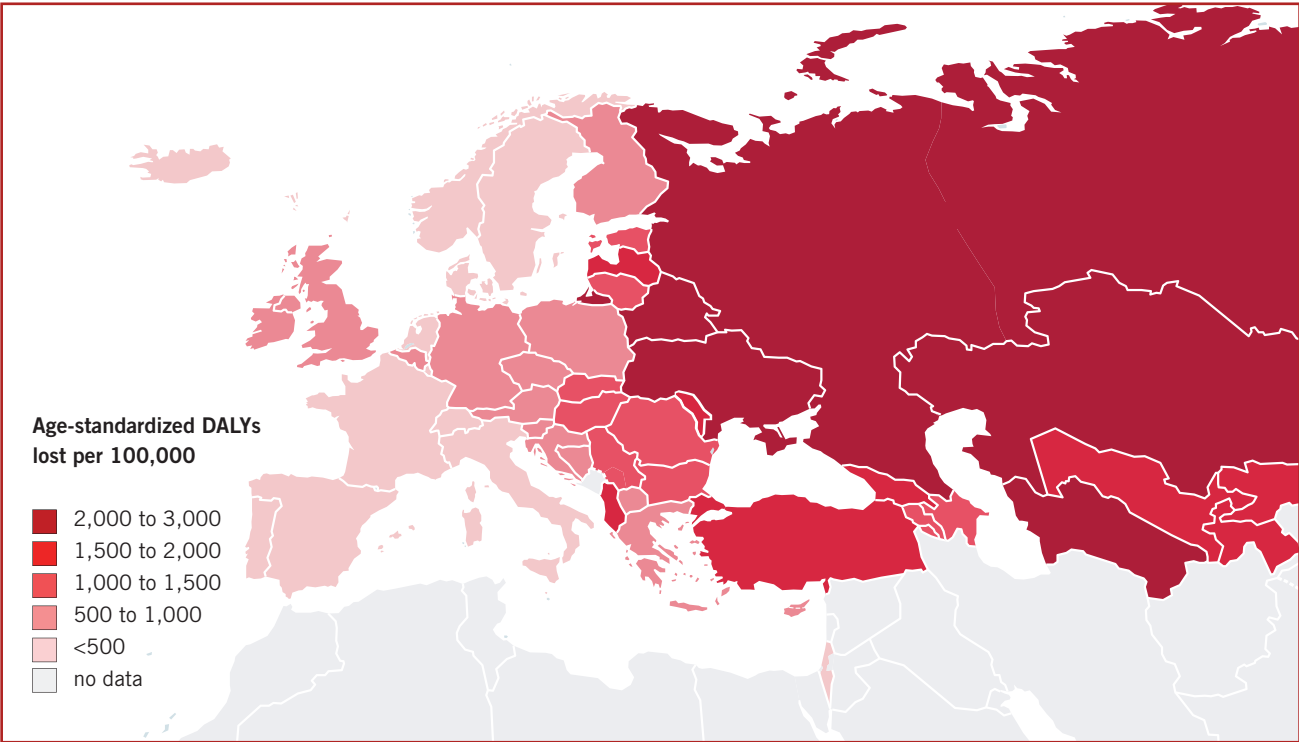


Figure 2.2b Age-standardized DALYs rate for stroke, 2002, Europe

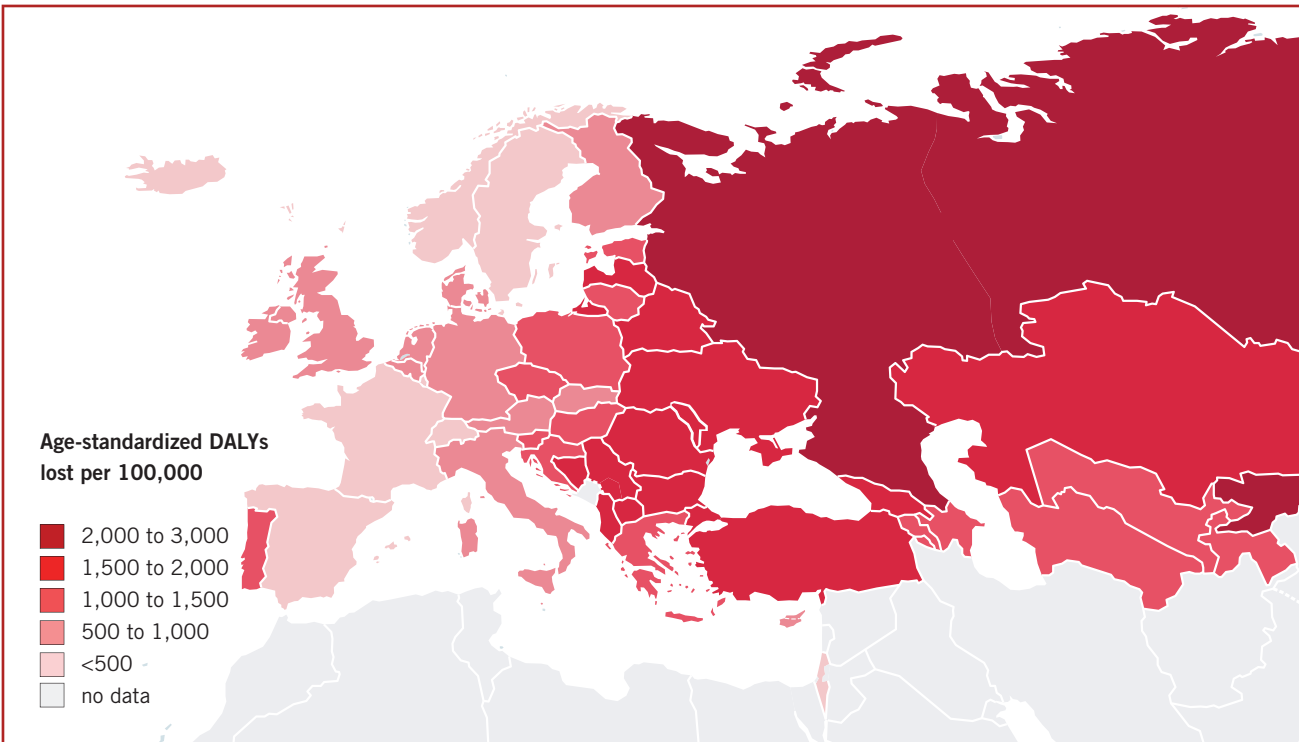


Table 2.3 30-day case fatality rate after admission for cardiovascular diseases, 2009 or latest year, Europe

Year	30-day case-fatality rate after admission for AMI		30-day case-fatality rate after admission for ischaemic stroke		30-day case-fatality rate after admission for hemorrhagic stroke	
	Crude rate	Age - sex standardized rate (%)	Crude rate	Age - sex standardized rate (%)	Crude rate	Age - sex standardized rate (%)
Austria	8.6	5.7	6.3	3.1	15.6	12.1
Belgium	13.4	8.6	15.3	8.6	45.8	38.6
Czech Republic	6.6	4.3	10.3	5.8	21.3	18.0
Denmark	3.9	2.3	4.6	2.6	19.7	16.4
Finland	10.6	4.8	5.8	2.8	9.3	6.5
Germany	10.4	6.8	8.0	4.0	17.6	13.8
Iceland	7.1	3.0	8.0	2.8	19.7	14.1
Ireland	6.8	4.3	10.2	6.1	25.2	23.9
Israel	6.8	4.5	5.9	3.5	24.2	20.9
Italy	6.5	3.7	7.3	3.4	22.2	17.6
Luxembourg	5.0	5.2	8.3	4.5	30.6	24.3
Netherlands	7.2	5.3	8.6	5.7	27.3	22.4
Norway	5.0	2.5	6.5	2.8	16.6	11.6
Poland	4.8	3.9				
Portugal	9.7	6.6	11.1	6.2	25.4	23.0
Slovak Republic	7.3	5.7	10.7	7.1	29.0	25.5
Slovenia	6.4	4.7	15.3	9.7	28.8	25.1
Spain	8.4	5.6	11.0	6.1	27.4	23.9
Sweden	6.6	2.9	8.4	3.9	17.2	12.8
Switzerland	6.9	4.5	8.2	4.3	19.9	14.8
United Kingdom	9.1	5.2	12.9	6.7	23.3	19.3

Sources: OECD Health Data 2011 <http://www.oecd.org/eis/health/policiesanddata/>

The total rates have been age-sex standardized to the 2005 OECD population (45+).

Notes: Rates are 'admission based' rates, reflecting fatalities occurring in the same hospital only. Blank cells indicate data were not available.

Table 2.4 Rates of hospital discharges from CVD, 1970 to 2009, Europe

	Discharges per 100,000															
	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Albania						417	540	520	614	665	646	623	668	719	705	785
Andorra							586	610	799	799	729	701	677	683	753	726
Armenia							639	599	676	786	833	931	972	1,035	1,142	1,224
Austria			1,092	1,236	1,225	3,320	3,630	3,614	3,714	3,677	3,779	3,746	3,769	3,804	3,777	
Azerbaijan			1,481			595	472	484	515	541	570	572	616	641	672	653
Belarus			3,444	4,577	4,749	5,049	5,226	5,049	5,226	5,309	5,309	5,165	5,374	5,599	5,750	5,786
Belgium			2,255	2,356	2,347	2,324	2,324	2,324	2,275	2,299	2,299	2,233	2,204	2,168		
Bosnia and Herzegovina			964	905												
Bulgaria			1,451	1,790	1,779	1,774	1,869	2,013	2,292	2,600	2,911	2,835	3,024	3,180	3,331	3,712
Croatia			1,136	1,265	1,232	1,232	1,760	1,692	1,730	1,781	1,798	1,850	1,947	1,926	1,904	1,892
Cyprus			607	690	809	549	818	927	837	820	840	813	757	844	670	
Czech Republic						3,051	3,261	3,430	3,436	3,522	3,618	3,514	3,368	3,254	3,151	3,168
Denmark			2,292	2,201	2,543	2,543	2,546	2,574	2,514	2,558	2,558	2,559	2,538	2,469	2,423	2,501
Estonia			2,338	2,664	3,239	3,245	3,174	3,309	3,374	3,309	3,387	3,243	3,360	3,372	3,494	3,327
Finland			3,293	3,858	3,785	3,654	3,646	3,646	3,662	3,670	3,121	3,033	3,033	2,913		
France			2,307	2,303	2,295	2,295	2,295	2,295	2,260	2,275	2,283	2,283	2,302	2,268	2,273	
Georgia			1,635	507	454	427	520	531	531	642	642	649	762	837	975	971
Germany			2,955	3,267	3,305	3,305	3,300	3,300	3,527	3,417	3,417	3,310	3,323	3,392	3,463	
Greece	778	978	1,191	1,404	1,593	2,010	2,309	2,432	2,531	2,592	2,671	2,708	2,797			
Hungary			3,171	4,239	4,039	4,239	4,239	4,248	4,448	4,453	4,453	4,495	4,376	3,861	3,863	
Iceland			1,863	1,919	1,878	1,919	1,878	1,878	1,819	1,710	1,710	1,830	1,545	1,480		
Ireland			1,420	1,420	1,492	1,492	1,475	1,475	1,447	1,421	1,421	1,268	1,241	1,202	1,181	1,163
Israel			1,754	2,047	1,911	1,925	1,834	1,834	1,749	1,659	1,659	1,638	1,600	1,502	1,482	
Italy			2,128	2,349	2,582	2,572	2,552	2,552	2,444	2,449	2,449	2,363	2,330	2,248	2,179	
Kazakhstan			1,597	1,207	1,314	1,389	1,519	1,519	1,638	1,785	1,785	1,805	1,856	1,817	1,899	1,970
Kyrgyzstan			1,257	903	1,041	1,036	975	1,000	977	977	977	1,130	1,257	1,385	1,326	
Latvia			1,898	2,423	2,445	2,598	3,147	3,175	3,289	3,399	3,399	3,636	3,816	3,900	3,893	3,190
Lithuania	1,634		1,978	2,628	2,687	3,201	4,102	3,890	3,898	4,042	4,081	4,154	4,047	4,059	4,226	4,283
Luxembourg			2,612	2,364	2,439	2,382	2,439	2,439	2,382	2,382	2,382	2,236	2,249	2,172		
Malta			666	665	592	592	592	592	741	835	835	727	751	656	942	1,183
Montenegro			1,059	1,249	1,400	1,539	1,583	1,759	1,759	1,733	1,636	1,710	1,670	1,670	1,654	1,677
Netherlands			1,338	1,414	1,583	1,403	1,369	1,411	1,451	1,544	1,544	1,558	1,572	1,580	1,626	
Norway			2,194	2,349	2,366	2,366	2,366	2,366	2,388	2,500	2,480	2,467	2,495	2,449	2,452	2,368
Poland			1,344	1,530	1,814	2,052			2,880	2,926	2,926	2,556	2,645	2,550	3,085	
Portugal			944	1,125	1,164	1,164	1,213	1,221	1,221	1,220	1,220	1,206	1,194	1,332	1,388	
Republic of Moldova			1,316	1,626	1,727	1,580	1,315	1,311	1,558	1,983	2,032	2,023	2,100	2,153	2,300	2,327
Romania			1,784	1,914	1,737	2,024	2,422	2,741	2,965	2,798	2,882	2,589	3,159	2,826	3,057	3,178
Russian Federation			2,226	2,255	2,763	3,020	3,020	3,020	3,108	3,267	3,414	3,479				
Serbia			1,455	1,587	1,554	1,554	1,554	1,554	1,691	1,797	1,797	1,812	1,823	1,932	2,094	2,160
Slovakia			2,534	2,443	2,569	2,569	2,539	2,539	2,501	2,564	2,679	2,688	2,688	2,463	2,684	2,697
Slovenia			1,286	1,391	1,424	1,560	1,685	1,738	1,718	1,745	1,792	1,851	1,960	1,940	1,918	1,976
Spain			537	691	775	1,059	1,333	1,342	1,359	1,368	1,359	1,339	1,323	1,323	1,315	
Sweden			2,796	2,996	2,639	2,585	2,538	2,538	2,538	2,505	2,482	2,467	2,455	2,441		
Switzerland			1,699	1,649	1,649	1,699	1,699	1,699	1,649	1,678	1,680	1,719	1,735	1,735	1,775	
Tajikistan			533	533	561	561	622	678	771	735	735	771	879	918	925	933
TFYR Macedonia			759	1,184	1,267	1,398	1,424	1,381	1,424	1,477	1,477	1,556	1,430	1,443		
Turkey			896	909	1,009	1,009	1,104	1,211	1,262	1,262	1,262	1,146	1,047	1,183	1,180	
Turkmenistan			821	1,405	1,247	1,359	1,462	1,462	1,385	1,385	1,225	1,249	1,368	1,426	1,522	
Ukraine			2,119	2,601	2,792	2,568	2,612	2,791	2,964	3,105	3,280	3,462	3,586	3,677	3,781	3,744
United Kingdom			1,422	1,405	1,401	1,389	1,389	1,389	1,378	1,378	1,378	1,353	1,321	1,304	1,311	1,305
Uzbekistan			1,217	959	1,059	1,178	1,234	1,234	1,269	1,269	1,269	1,394	1,444	1,552	1,558	1,586
European Region			1,920	2,021	2,226	2,311	2,351	2,409	2,452	2,481	2,481	2,430	2,458	2,453	2,494	2,498
EU			1,979	2,191	2,396	2,423	2,449	2,481	2,480	2,480	2,480	2,397	2,420	2,378	2,436	

Source: WHO Europe. Health for All Database (HFA-DB) <http://data.euro.who.int/hfad/>
Notes: Blank cells indicate data were not available.

Table 2.5 Rates of hospital discharges from CHD, 1970 to 2009, Europe

	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Albania						121	157	146	172	191	195	187	188	204	196	250
Andorra								126	142	186	156	120	149	150	179	157
Armenia			334	437	521	318	282	258	288	324	350	382	411	434	469	505
Austria					391	587	748	923	940	946	988	982	994	990	954	
Azerbaijan					499	201	154	162	155	166	184	175	179	186	214	230
Belarus					1,635	2,212	2,296	2,278	2,452	2,541	2,569	2,641	2,641	2,720	2,713	2,864
Belgium					689	736	719	716	716	711	721	678	653	632		
Bosnia and Herzegovina	181	139														
Bulgaria	460	524	545	542	542	542	542	489	489	579	663	721	854	932	1,017	1,273
Croatia			295	334	309	495	457	458	458	490	491	503	486	470	469	490
Cyprus			223	293	339	222	332	360	248	269	269	279	194	257	198	
Czech Republic					1,223	1,041	1,107	1,058	1,097	1,062	983	905	851	776	771	
Denmark			700	684	790	803	844	817	831	823	766	731	684	695		
Estonia			936	990	1,117	1,094	1,035	1,038	1,047	998	1,047	998	1,090	1,002	999	900
Finland			1,153	1,369	1,160	1,140	1,128	1,138	1,091	923	865	791				
France					503	512	517	521	521	513	519	519	504	497		
Georgia			677	181	194	193	236	263	311	333	404	399	483	463		
Germany			947	1,060	1,011	1,003	1,083	1,042	977	959	938	916				
Greece	191	241	296	412	521	722	777	829	867	872	921	936	970			
Hungary					961	1,113	943	879	895	904	876	857	791	808		
Iceland					790	724	763	769	738	639	704	576	576	571		
Ireland					477	457	485	493	478	455	422	418	392	375	354	
Israel			834	938	823	815	765	704	641	619	577	516	501			
Italy			493	520	600	593	606	599	606	582	570	550	529			
Kazakhstan			324	321	365	322	324	307	328	328	385	364	394	497		
Kyrgyzstan			849	1,094	1,163	1,166	1,263	1,278	1,342	1,381	1,453	1,472	1,189			
Latvia			1,283	1,327	1,526	1,415	1,374	1,352	1,380	1,376	1,311	1,304	1,297	1,312		
Lithuania					819	868	907	931	856	778	689	606				
Luxembourg					184	204	185	260	304	271	238	188	288	351		
Malta					342	421	487	487	559	595	541	555	521	509	565	
Montenegro					612	523	510	521	522	553	539	529	527	526		
Netherlands			500	543	890	876	944	938	981	971	952	981	972	952	899	
Norway			332	397	541	598	598	598	958	886	774	778	742	884		
Poland					225	277	274	285	285	283	285	276	254	328	339	
Portugal			508	689	665	562	419	373	444	571	578	547	588	592	656	659
Republic of Moldova					637	752	809	848	723	649	473	492	492	364	367	374
Romania					888	936	1,103	1,168	1,178	1,201	1,258	1,313	1,330			
Russian Federation					373	423	400	460	486	490	507	570	629	644		
Serbia					1,089	955	954	917	874	874	861	884	836	737	810	780
Slovakia			309	313	349	347	366	381	394	401	392	411	433	417	397	411
Slovenia			102	164	202	278	363	361	365	362	356	338	328	317	302	
Spain					868	959	905	912	878	856	820	786	766	745		
Sweden					174	122	136	169	176	195	217	249	264	265	266	
Switzerland					321	480	573	623	658	617	666	605	551			
Tajikistan			38	56	99	144	206	226	250	291	303	365	454	534	524	
TFYR Macedonia					269	56	54	38	45	37	34	28	27	19	24	
Turkey			614	719	728	665	1,197	1,284	1,380	1,450	1,555	1,646	1,712	1,761	1,825	1,809
Turkmenistan					523	519	508	504	488	471	458	444	421	448		
Ukraine					321	300	347	392	398	444	443	443	472	588		
United Kingdom					609	643	738	759	769	790	800	795	802	801	804	803
Uzbekistan					575	652	707	706	709	719	705	664	655	632	631	
European Region																
EU																

Source: WHO Europe, Health for All Database (HFA-DB) <http://data.euro.who.int/hfad/>
 Notes: Blank cells indicate data were not available.

Table 2.6 Rates of hospital discharges from stroke, 1970 to 2009, Europe

	Discharges per 100,000															
	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Albania						45	80	82	80	91	91	94	108	124	130	150
Andorra							107	107	123	113	101	117	106	107	84	94
Armenia		101	128		194	132	130	129	147	163	161	172	162	177	187	195
Austria		194			194	427	671	577	586	545	580	577	570	559	549	
Azerbaijan					113	53	45	48	53	48	52	52	62	65	71	73
Belarus					569	896	912	949	1,037	1,083	1,083	1,063	1,092	1,143	1,154	1,163
Belgium					362	390	393	391	377	378	378	363	363	358		
Bosnia and Herzegovina		131	119													
Bulgaria		134	268		293	323	426	468	586	666	717	592	616	615	622	613
Croatia		233	297		281	281	411	394	396	392	383	409	437	426	411	410
Cyprus		116	131		89	140	149	149	137	146	149	120	126	157	120	
Czech Republic					558	619	625	633	633	631	626	615	601	572	543	550
Denmark					430	394	452	435	424	411	404	384	373	364	356	358
Estonia					380	497	502	499	536	570	608	619	613	639	705	714
Finland					681	820	658	661	645	646	633	561	564	550		
France					222	220	221	221	219	222	223	228	227	223	229	
Georgia					192	54	74	74	79	80	95	98	102	132	142	149
Germany					487	462	464	464	462	542	512	497	506	513	526	
Greece	117	190	230	256	274	330	404	424	438	434	415	448	464			
Hungary					598	832	845	845	969	1,082	1,208	1,276	1,217	1,051	1,053	
Iceland					244		237	228	206	254	206	207	180	149		
Ireland					234	250	258	258	251	247	252	171	169	165	166	168
Israel					203	253	259	258	247	250	249	247	246	237	235	
Italy					394	436	489	494	503	491	485	475	470	457	446	
Kazakhstan					176	169	210	234	278	293	321	351	355	362	377	405
Kyrgyzstan		91	107		145	124	153	155	142	145	145	174	188	229	236	
Latvia		282	383		445	542	638	669	695	713	732	795	838	852	838	692
Lithuania					408	512	671	780	698	757	790	804	839	826	816	859
Luxembourg					233	184	164	164	164	164	173	167	165	168		
Malta					79	77	65	77	65	73	61	54	71	58	68	107
Montenegro					163	169	185	194	201	197	197	183	192	203	203	206
Netherlands					181	175	184	185	193	200	212	224	229	226	229	
Norway					382	320	321	328	328	353	345	342	345	331	331	309
Poland		130	159		191	232	336	345	350	338	336	327	308	305	310	
Portugal					287	270	271	247	328	418	429	475	518	540	543	608
Republic of Moldova					280	328	328	404	442	461	516	523	669	629	580	587
Romania					370	458	595	653	668	684	720	760	769			
Russian Federation																
Serbia					338	360	362	360	362	380	400	431	420	410	419	459
Slovakia					491	452	473	475	475	465	473	518	515	458	483	462
Slovenia		219	268		249	255	230	230	222	225	228	228	235	226	218	232
Spain		89	107		112	176	213	221	224	228	227	223	225	223	223	
Sweden					613	617	446	418	422	417	418	417	410	397		
Switzerland																
Tajikistan					109	31	38	44	52	42	47	56	65	66	64	69
TFYR Macedonia					121	199	218	240	224	237	224	243	247	261		
Turkey					50	71	106	148	166	174	193	212	152	100	100	
Turkmenistan					82	132	134	147	147	162	169	145	153	183	192	209
Ukraine		244	358		486	467	540	585	629	671	723	770	798	828	859	862
United Kingdom							204	206	214	213	212	212	210	207	213	223
Uzbekistan					112	79	94	94	99	102	105	116	117	116	127	120
European Region					299	333	380	398	410	428	441	440	442	438	442	443
EU					304	342	367	372	383	399	403	393	399	389	392	

Source: WHO Europe. Health for All Database (HFA-DB) <http://data.euro.who.int/hfad/>

Notes: Blank cells indicate data were not available.

3. Treatment

Surgical procedures for treating CVD

Rates of surgical procedures for CVD vary widely across Europe and it appears that data collection and quality also varies substantially. The comparability of the data across countries is limited by variability in the way in which health care provision is organised in countries and the information that is collected for national statistics – for instance in some countries, data do not include private hospitals. In data provided by the European Commission ‘Eurostat’ database, there were no consistent geographical patterns in rates of surgical interventions for CVD (Table 3.3).

Rates of surgery for stroke treatment (evacuation of subdural haematoma and intracranial haemorrhage) were highest in Switzerland, Finland and Germany, and lowest in Slovenia, the Netherlands and Romania. Rates of coronary angioplasty were lowest in Portugal and Romania, and highest in Germany, where the rate of this surgery was more than double that in Austria and the Czech Republic, which had the next highest rates, and more than 20 times the rate in Portugal. For heart bypass anastomosis surgery, rates were highest in Switzerland, Germany and Estonia, and lowest in Finland, Romania and Slovakia.

Medications for treatment and prevention of CVD

The European Society of Cardiology EUROASPIRE project has collected, among other data, information on drug prescriptions for patients with diagnosed cardiovascular conditions in hospitals in a number of European countries. While not necessarily representative of national prescribing patterns these data do give some indication of the scale of drug use across Europe. The EUROASPIRE III survey, in 2006/07, showed that the use of drugs for secondary prevention in CHD patients varied considerably across survey populations¹. Anti-platelet drugs (including aspirin) were the most widely used drugs, which were used by between 88% and 99% of patients in the countries studied. The use of statins varied more than two-fold (from 38% of patients in Lithuania to 96% of patients in Finland), as did the use of lipid-lowering drugs. The use of ACE inhibitors varied two-fold (from 46% of patients in Belgium to 90% of patients in Poland). Anti-coagulant drugs varied most dramatically between countries, from below 5% of patients in half of the 22 countries, to 36% of patients in Germany (Table 3.1).

Comparable data are now available on eight countries that have taken part in all three EUROASPIRE surveys to date² (Table 3.2, Figure 3.2). Since 1995/96 the use of lipid-lowering drugs has massively increased in Europe. The prescription rate for these drugs has at least doubled in all eight EUROASPIRE populations for which data are available. In Italy, the rate has more than tripled, increasing from 25% of patients in 1995/96 to 91% of patients in 2006/07. There has also been a large increase in the prescription of ACE inhibitors, although in general the prescription rates for these drugs are lower than for lipid-lowering drugs.

1 Kotseva K, Wood D, De Backer G, De Bacquer D, Pyorala K, Keil U. EUROASPIRE III: a survey on the lifestyle, risk factors and use of cardioprotective drug therapies in coronary patients from 22 European countries. *Eur J Cardiovasc Prev Rehabil* 2009;16(2):121-37.

2 Kotseva K, Wood D, De Backer G, De Bacquer D, Pyorala K, Keil U. Cardiovascular prevention guidelines in daily practice: a comparison of EUROASPIRE I, II, and III surveys in eight European countries. *Lancet* 2009;373(9667):929-40.

Table 3.1 Reported medication at discharge: hospital patients with established CHD, 2006/07, EUROASPIRE III survey populations

	CHD hospital patients receiving medication					
	Anti-platelets (%)	Beta-blockers (%)	ACE inhibitors (%)	Lipid lowering (%)	Statins (%)	Anti-coagulants (%)
Belgium	95.1	83.0	46.0	83.0	83.3	9.0
Bulgaria	87.9	82.3	69.9	62.5	65.6	7.8
Croatia	97.8	81.5	70.1	80.7	80.9	3.7
Cyprus	98.1	60.2	61.0	89.0	89.4	1.4
Czech Republic	95.4	87.3	67.4	88.6	90.1	15.0
Finland	94.5	94.5	58.6	95.8	95.8	17.7
France	98.5	82.7	73.6	88.2	90.9	14.0
Germany	98.2	90.7	79.3	89.0	89.4	35.6
Greece	98.4	75.4	65.3	81.0	83.5	4.1
Hungary	90.0	91.9	71.9	77.6	78.0	6.3
Ireland	98.8	84.2	58.9	89.5	90.4	1.2
Italy	95.2	81.7	66.0	72.1	72.9	2.7
Latvia	88.6	86.5	71.7	83.9	83.9	5.2
Lithuania	89.8	78.2	60.7	38.2	38.4	3.5
Poland	97.4	89.9	89.7	94.2	95.0	2.8
Romania	97.3	91.9	70.1	85.8	85.8	7.3
Russian Federation	97.3	89.1	85.7	66.0	66.7	0.5
Slovenia	94.3	80.1	76.7	85.5	86.1	9.1
Spain	91.9	61.7	48.3	63.1	67.6	3.8
The Netherlands	97.9	74.0	61.2	87.2	87.6	12.5
Turkey	99.4	83.1	73.6	82.0	82.3	2.7
United Kingdom	98.4	74.9	72.8	91.5	92.0	1.6

Source: Kotseva K, Wood D, De Backer G, De Bacquer D, Pyorala K, Keil U. EUROASPIRE III: a survey on the lifestyle, risk factors and use of cardioprotective drug therapies in coronary patients from 22 European countries. *Eur J Cardiovasc Prev Rehabil* 2009;16(2):121-37.

Table 3.2 Reported medication, hospital patients with established CHD, 1995/96, 1999/2000 and 2006/07, EUROASPIRE survey populations

	CHD hospital patients receiving medication														
	Anti-platelet therapy (%)			Beta-blockers (%)			ACE-inhibitors & AT2 antagonists (%)			Lipid lowering drugs (%)			Statins (%)		
	EA1	EA2	EA3	EA1	EA2	EA3	EA1	EA2	EA3	EA1	EA2	EA3	EA1	EA2	EA3
Czech Republic	85	88	93	65	74	91	28	47	76	29	57	90	6	39	88
Finland	82	82	96	78	88	96	17	31	59	39	64	95	35	63	95
France	82	86	98	56	60	74	34	44	79	42	68	92	20	61	89
Germany	83	86	92	44	68	85	31	51	73	35	68	87	31	66	85
Hungary	72	75	86	58	84	86	46	59	81	22	51	80	7	45	77
Italy	86	92	98	49	61	88	32	54	71	25	60	91	7	57	90
Netherlands	78	81	96	47	48	75	27	43	67	36	76	92	14	75	91
Slovenia	79	82	92	52	66	87	31	63	83	30	58	92	23	56	90
Total	81	84	93	56	69	86	31	49	75	32	63	89	18	57	87

Source: Kotseva K, Wood D, De Backer G, De Bacquer D, Pyorala K, Keil U. Cardiovascular prevention guidelines in daily practice: a comparison of EUROASPIRE I, II, and III surveys in eight European countries. *Lancet* 2009;373(9667):929-40.

Figure 3.2 Reported medication use in hospital patients with established CHD, 1995/96, 1999/2000 and 2006/07, EUROASPIRE survey populations

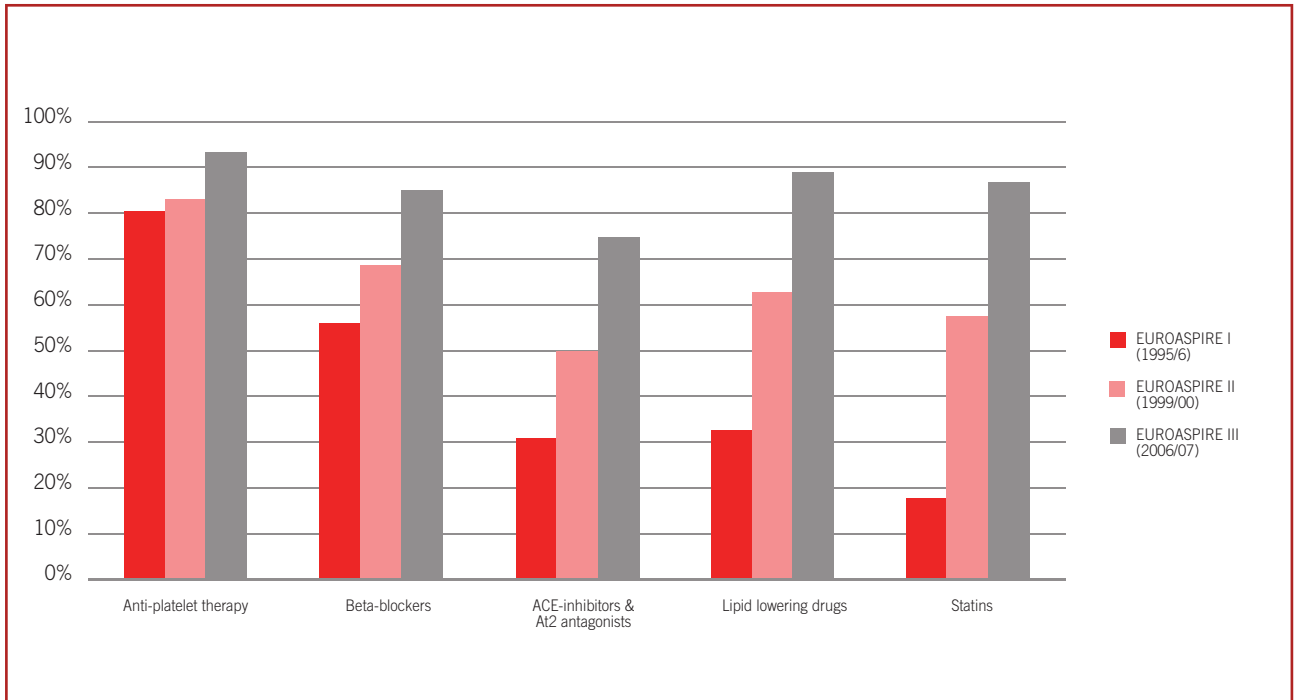


Table 3.3 Rates of surgical procedures for treating CVD, 2005 to 2010, Europe

	In-patients per 100,000 inhabitants																	
	Evacuation of subdural haematoma and intracranial haemorrhage					Transluminal coronary angioplasty					Bypass anastomosis for heart revascularization							
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Belgium	15.5	15.1	15.1	16.0			226.0	227.9	218.0	219.0			82.0	80.3	76.4	73.1		
Czech Republic	14.5	14.4	14.7				215.1	217.4	217.4	221.0			75.7	70.5	62.6	56.8		
Denmark	14.9	15.5	16.0	16.8	18.0		197.2	195.6	186.5				42.9	42.7	44.4			
Germany	7.0	6.2	6.6	6.6	6.9		509.0	536.5	549.9	566.8	581.5		137.8	129.2	131.7	124.0	119.8	
Estonia	7.7	7.7	8.1	8.3	8.7		69.8	107.0	122.8	146.6	168.6		121.7	134.5	124.5	120.4	109.9	
Ireland	7.4	7.6	8.2	8.4	8.9		88.5	91.6	87.3	87.6	83.6		45.6	40.3	40.7	45.3	45.3	
Spain	8.5	8.6	8.3	8.3	8.5		96.6	101.5	111.7	108.1	115.5		29.7	28.6	29.6	31.1	29.4	
France	23.6	15.5	19.6	16.2			179.4	185.1	185.3	189.0	194.0		30.2	30.0	30.9	31.3	30.2	
Italy	9.2	8.8	8.0	8.3	8.1		90.8	97.2	101.3	101.7	100.9		41.4	37.1	36.2	34.8	31.5	
Cyprus	9.2	8.8	8.0	8.3	8.1													
Luxembourg	13.9	13.7	13.1	14.6	12.7		176.3	187.1	146.6	174.2	192.1		60.8	60.5	62.8	65.1	51.9	
Hungary	2.2	2.5	2.8	2.6	2.7		161.5	211.2	213.7	238.2	180.9		128.9	115.5	98.9	94.1	85.5	
Netherlands	3.2	3.1	2.4	1.4			157.3	167.5	175.4	165.2	170.4		57.2	58.1	58.3	58.3	57.8	
Austria	9.5	11.1	11.7	11.0	11.3		228.1	230.6	231.0	229.6			50.1	52.2	52.1	39.9	38.0	
Poland	3.9	2.5	2.5	2.5	1.7		72.7	70.2	68.1		64.7		35.5	43.6	43.0	42.0	39.7	
Portugal	12.8	12.6	13.6	15.1	13.5		74.1	85.9	72.8	42.0	22.9		49.8	52.4	62.0	68.7	64.7	
Romania	18.7	20.4	21.2	22.6	20.5	5.7	89.6	125.2	176.8	175.4	195.9	53.2					19.4	18.9
Slovenia	14.8	14.7	14.7	15.1	16.3													
Slovakia	5.2	5.6	5.9	6.0	6.3													
Finland	12.3	9.8	8.5	30.3	27.7													
Sweden	24.0	22.5	23.1															
United Kingdom																		
Iceland																		
Switzerland																		

Source: European Commission, Eurostat database http://lepp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
 Notes: Blank cells indicate data were not available.

Figure 3.3a Rates of evacuation of subdural haematoma and intracranial haemorrhage, latest available year, Europe

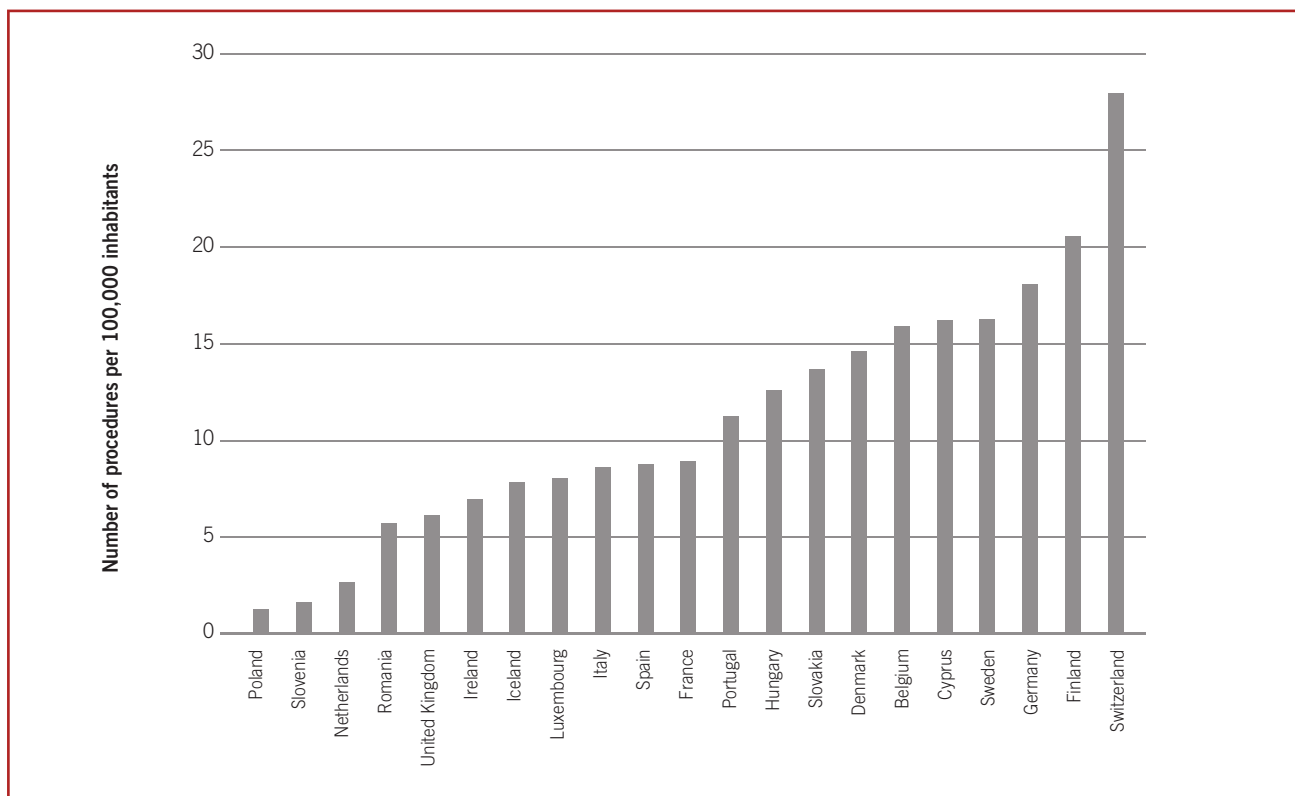


Figure 3.3b Rates of transluminal coronary angioplasty, latest available year, Europe

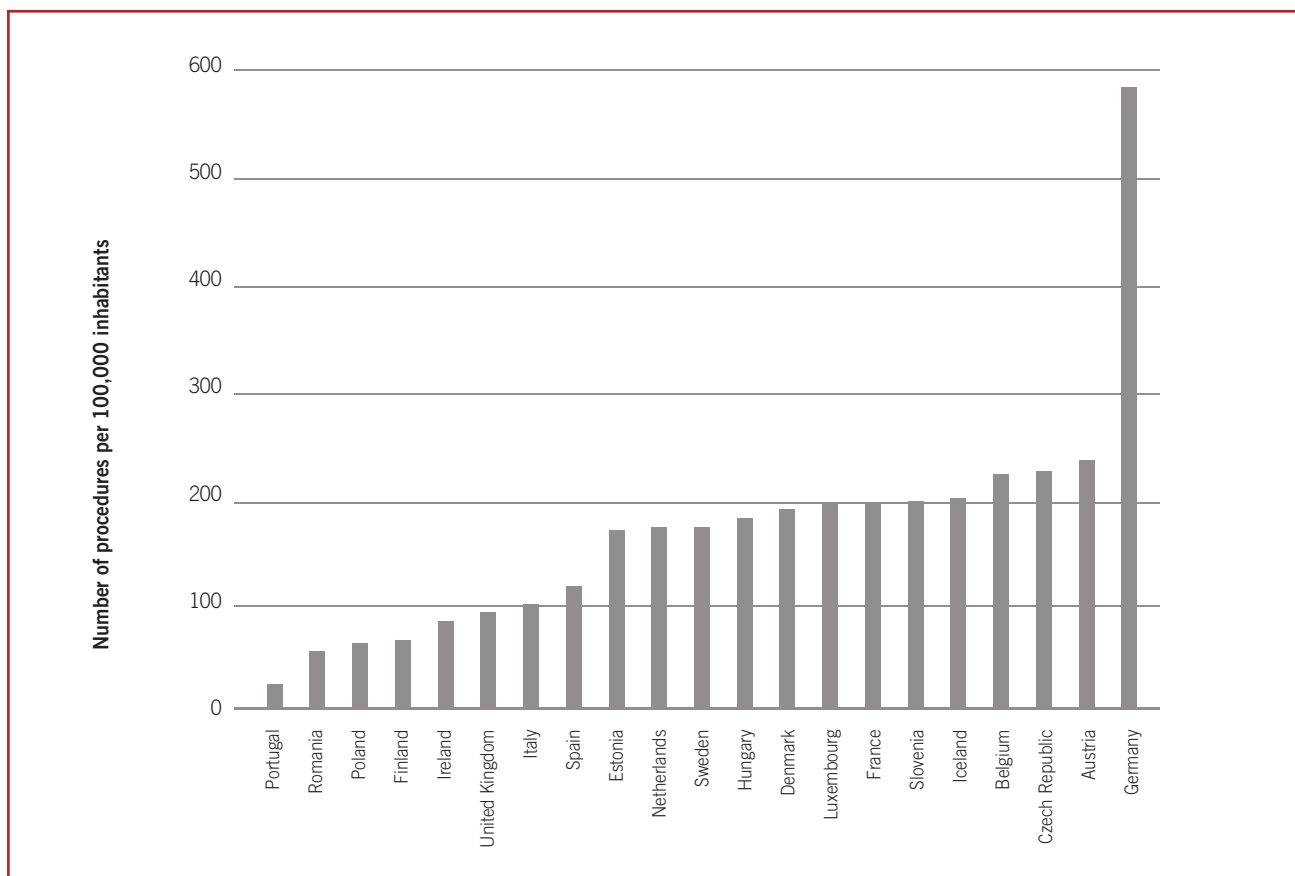
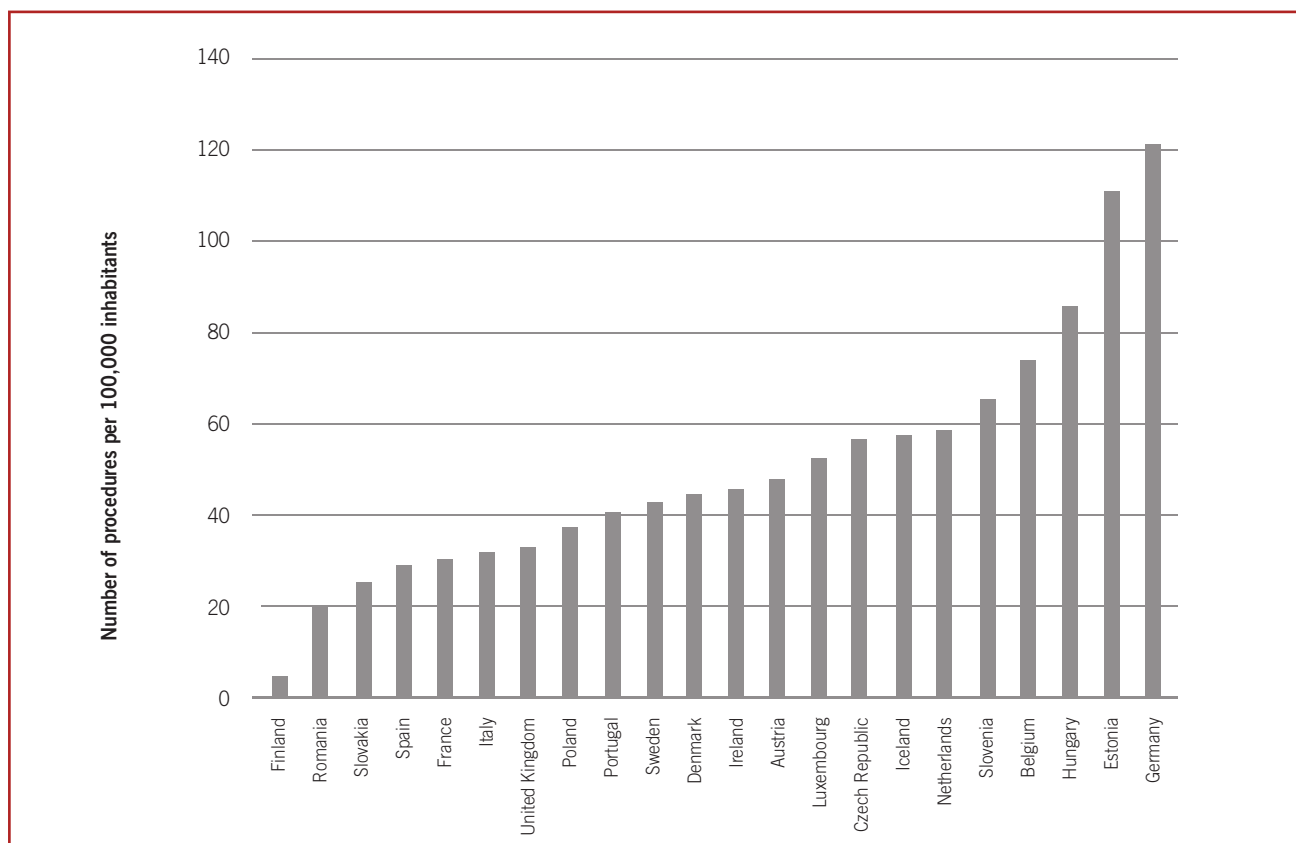


Figure 3.3c Rates of bypass anastomosis for heart revascularization, latest available year, Europe



4. Smoking

Smoking related mortality and morbidity

Despite 50 years of clear evidence of the harms of tobacco smoking, it remains prevalent and is one of the most important modifiable risk factors for premature mortality. Since the landmark 'Smoking and Health' report of 1962, it is estimated that over 6 million people per year have died as a result of smoking¹.

In Europe, about 20% of deaths from CVD in men and about 3% of deaths from CVD in women are due to smoking. The equivalent figures for the 25 countries that made up the EU in 2006 (EU-25) are 16% and 5% respectively. A higher proportion of premature deaths from CVD are due to smoking. In Europe, smoking causes 32% of CVD deaths in men aged 35 to 69 years and 6% of CVD deaths in women of the same age. In the EU-25 the equivalent figures are 28% and 13% respectively².

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 is due to smoking³.

Prevalence of smoking

Data from the World Health Organization's 'Health for All' database show that in almost all European countries (excluding Sweden and Norway) the prevalence of smoking is higher in adult men than it is in adult women. The difference in the prevalence of smoking between men and women is more marked in Eastern Europe than in Western Europe. For example, in Armenia, over 50% of men smoke, compared to just 1.5% of women, and in Uzbekistan 24% of men smoke compared to only 1% of women (Table 4.1). The highest rates of smoking among women (around 30% in TFYR Macedonia, Germany, Andorra, Bosnia and Herzegovina, Greece and Montenegro) are just half of the highest rates reported among men (around 60% in Albania and the Russian Federation).

The prevalence of smoking in men is generally higher in Eastern European and former Soviet countries – of the six European countries where more than half of men smoke, five were part of the Soviet Union; the sixth is Albania. In contrast, the male smoking rate in Western and Northern Europe is in general less than 35%, with the exception of Germany (37%). This pattern is reversed for women, where smoking rates are very low in former Soviet states (around 6% in Georgia and Ukraine, less than 2% in Kyrgyzstan and Armenia, less than 1% in Uzbekistan and Azerbaijan), low in Eastern and Central European countries but higher in Western and Northern European countries (Table 4.1 and Figures 4.1a and 4.1b).

EuroBarometer survey data published in 2010 showed that the overall smoking rate in the EU in 2009 was 29%⁴. There was also evidence of substantial inequalities in the prevalence of smoking in the EU, with lower rates of smoking among those in high socio-economic positions, and very high rates among unemployed persons (52%, compared to 39% among manual workers and 25% among managers)⁴. Despite generally narrower gender gaps in smoking prevalence in many EU countries compared to the rest of Europe, there remain substantially more male smokers than female smokers in the EU (35% vs 25%)⁴.

Among adolescents, the traditional gender patterns of smoking have tended to be less clearly expressed. The most recent data, however, suggest that it is again becoming more common for boys than girls to smoke. In 2001/02, data from the Health Behaviour in School-aged Children survey on smoking among 15 year olds showed that in 22 of 32 countries included, a greater proportion of 15 year old girls smoked than did boys. In the most recent survey, collected in 2009/10, however, only 12 of 35 participating European countries showed more 15 year old girls than boys were regular smokers. The largest excess of female compared to male 15 year old smokers was seen in Spain, Czech Republic, England and Wales. Smoking is more prevalent among 15 year old boys in Eastern European and former Soviet countries, but the gap between the sexes is less marked than for adults (e.g. Russian Federation, 19% boys vs. 15% girls) (Table 4.2 and Figures 4.2a and 4.2b).

Trends in smoking prevalence

Over the past 30 years the prevalence of smoking among men has fallen in almost all European countries for which data are available. The main exception to this is the Russian Federation, where the most recent data (2004) show over 60% of men smoking. The prevalence of smoking among women has also fallen in most, but not all, European countries. In many countries where there has been a decline in the prevalence of smoking among women the decline has been less marked than for men. For example between 1980 and 2005 the prevalence of smoking in Norwegian men fell by half but in Norwegian women it fell by just a third. This has meant that the difference in smoking prevalence between men and women has become less pronounced in recent years (Table 4.1).

Trend data on the prevalence of smoking in 15 year olds around Europe show a divergence over the last 15 years, with smoking among adolescents in many countries, particularly those of Northern and Western Europe, decreasing substantially between 1993/94 and 2009/10. At the same time, a number of countries, notably Italy and the Czech Republic, have seen large increases in smoking among 15 year old boys and girls, and the Russian Federation, Latvia, Hungary, Estonia and Slovakia have seen increases particularly among girls (Table 4.2 and Figure 4.2c).

Passive smoking

The relationship between passive smoking and various non-communicable diseases has been studied since the mid-1970s and a number of relationships between passive smoking and a variety of health problems – including CVD and cancer – have been observed⁵. Smokefree policies designed to protect populations from the effects of passive smoking are now widespread in Europe.

It is estimated that nearly 80,000 people in the EU-25 died from passive smoking in 2002, of which over 32,000 died from CHD. Over 25,000 passive smoking deaths were in the United Kingdom or Germany alone (Table 4.3).

Smokers tend to live with other smokers, so many of the deaths due to passive smoking are amongst smokers. But nearly 20,000 non-smokers died of passive smoking in the EU-25 in 2002, over half of which died from CHD (Table 4.3).

1 World Health Organization. *WHO Report on the Global Tobacco Epidemic, 2011: Warning about the dangers of tobacco*. http://www.who.int/tobacco/global_report/2011/en/. Geneva: WHO, 2011.

2 Peto R, Lopez A, Boreham J, Thun M. *Mortality from smoking in developed countries 1950-2000. 2nd edition*. Oxford: Oxford University Press, 2003.

3 World Health Organization. *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. Geneva: WHO, 2002.

4 European Commission. *Special Eurobarometer 332 'Tobacco' / Wave 72.3 – TNS Opinion & Social*. http://ec.europa.eu/public_opinion/index_en.htm. Brussels, Belgium, 2010.

5 The Smoke Free Partnership. *Lifting the smokescreen. 10 reasons for a smoke free Europe*. <http://www.smokefreepartnership.eu/Smoke-free-legislation-in-the-EU>. Brussels: European Respiratory Society, 2007.

Table 4.1 Prevalence of smoking, adults aged 15 years and over, by sex, 1980 to 2009, Europe

Men	1980-84	1985-89	1990-94	1995-99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Albania	49.8			43.7	60.0		42.0			59.6	57.1	54.7	54.7	52.0
Andorra				63.7		67.5					27.3			
Armenia				38.9										
Austria		33.5	38.8			40.4	41.7	39.9	41.2	37.9	38.6	38.0	38.0	36.3
Azerbaijan				54.3	54.0	53.3	53.0	53.2	54.3	54.4	53.2	52.8	52.3	51.9
Belarus				31.8	36.0	34.0	33.0	30.0	28.0	23.0	29.0	25.0	24.0	
Belgium	49.0	42.8	33.2				49.2							
Bosnia and Herzegovina				49.3		43.8								
Bulgaria		49.0		34.1	34.1			33.8						
Croatia				28.5				38.1						
Cyprus				31.5			30.9	32.2	31.1	29.6	27.7	29.6	24.9	29.7
Czech Republic			32.2	35.4	32.0	33.5	30.5	31.0	29.0	28.0	26.0	28.0	24.0	22.0
Denmark			48.8	44.1	44.1		45.0	42.0	42.0	40.9			38.6	
Estonia				28.6	27.0	29.0	27.5	25.7	27.1	26.0	24.4	25.8	24.0	21.9
Finland	33.8	32.8	31.0											
France	46.0		38.0	35.0	33.0	53.3	30.6	30.0						
Georgia				53.2										
Germany				43.0	38.9			37.1						
Greece			53.0	49.0	46.8									
Hungary			44.0	45.0	38.2			36.9						36.8
Iceland		33.1	28.9	26.5	23.3	24.5	22.2	25.4	21.5	19.5	21.3	20.7	20.3	15.9
Ireland	39.0	33.8	30.0	32.5			27.0		24.2	24.2	24.7	31.0	28.0	
Israel	45.5	39.3	36.7	31.8	30.0		32.0	31.9	32.7	32.1	29.0	32.3	31.3	
Italy			35.1	33.8	31.9	31.6	31.3	31.4		28.7	29.2	28.6	28.9	29.9
Kazakhstan				60.0		46.5			40.7					
Kyrgyzstan				60.0		51.0			41.4	41.4				
Latvia			49.4	51.1	51.3		51.1		47.3	46.6			45.0	
Lithuania			43.3	47.9	51.5		43.7		39.4	42.1	43.4		38.5	
Luxembourg			32.0	33.5	34.0		35.0	39.0	36.0	32.0	29.0	28.0	29.0	28.0
Malta			40.0	33.7			29.9						25.6	25.6
Montenegro													36.7	
Netherlands	45.7	39.5	42.5	38.9	35.9	38.9	37.9	35.8	35.1	35.4	35.5	32.0	32.2	32.1
Norway	41.3	39.7	36.7	33.4	31.3	29.5	28.8	27.2	27.2	26.0	24.0	21.0	21.0	20.0
Poland			51.0	43.0			40.0		38.0	42.0	37.0			33.5
Portugal	41.7	38.7	38.0	32.8							30.8			
Republic of Moldova					40.0	38.8	36.4	33.6	32.2	37.6	51.1			
Romania		43.9	36.7	32.3				33.2					32.1	
Russian Federation			47.0	62.0	62.2	60.4			61.3					
San Marino			28.0											
Serbia				40.6							30.7			
Slovakia			32.5	41.1										
Slovenia			34.7	31.6		28.0				24.0	21.4	22.4		
Spain			44.0	42.8		39.2		34.2			31.6			31.2
Sweden	33.8	28.2	24.3	19.2	16.8	17.9	16.3	16.7	15.0	13.9	12.3	12.8	12.0	
Switzerland			33.9	39.0		27.0	31.0		24.0			23.0		
TFYR Macedonia				40.0										
Turkey		62.8						51.1			50.6		43.8	
Ukraine				48.5	58.0				51.1	50.1	52.4	49.7	42.0	
United Kingdom	38.7	34.0	29.3	28.7	29.0	28.0	27.0	27.0	26.0	25.0	23.0	22.0	21.0	
Uzbekistan							24.1							

Table 4.1 continued...

	1980-84	1985-89	1990-94	1995-99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Women														
Albania			7.9	28.0	18.0									
Andorra				1.2		3.1	30.0			2.1	2.0	1.6	1.6	1.5
Armenia		17.4	23.7	22.6						19.4				
Austria				4.5	6.7	0.3	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.0
Azerbaijan				24.4	26.0	22.0	25.0	25.0	20.0	16.0	16.0	19.0	18.0	9.8
Belarus	27.0	25.8	21.8	20.3	23.0		29.7							
Belgium				31.6	26.6									
Bosnia and Herzegovina		17.0		7.6										
Bulgaria				18.8				21.7						
Croatia				30.6	29.0			10.5					14.3	
Cyprus				21.3	29.0			18.1	20.1	19.4	19.5	18.8	18.6	18.0
Czech Republic				35.0	30.6	25.5	26.0	25.0	23.0	24.0	23.0	21.0	22.0	17.0
Denmark				19.3	20.7	17.9	17.9	21.0	21.0	19.5	19.5	17.1	17.1	
Estonia		18.4		20.0	20.0	20.0	19.9	19.3	19.5	18.2	18.9	16.6	17.6	16.0
Finland	17.6			21.0	21.0	6.3	21.5	21.2						
France	17.0			11.9										
Georgia				30.0	30.6		30.5							
Germany				29.0	29.0									
Greece			30.0	24.5	23.0									
Hungary				27.0	27.0		24.6							26.7
Iceland		31.9	28.4	26.4	22.5	22.8	21.1	19.6	18.9	19.5	17.4	18.2	15.3	15.7
Ireland	32.0	29.8	28.2	30.0	24.0		27.0		23.6	23.6	24.7	27.0	26.0	
Israel	29.5	29.0	25.7	25.0	24.0		18.4	17.8	18.0	19.3	17.7	16.0	14.8	
Italy			16.8	17.5	17.4	17.1	17.2	17.6		16.4	17.2	16.6	16.4	17.1
Kazakhstan				7.0		7.6		8.8						
Kyrgyzstan				12.0		4.5		1.7		1.7				
Latvia			11.1	15.7	18.2		19.2		17.8	18.2			15.6	
Lithuania			6.3	11.0	15.8		12.8		14.2	9.8	14.5		13.9	
Luxembourg		25.0	26.0	27.5	26.0		25.0	26.0	26.0	22.0	21.0	22.0	21.0	21.0
Malta			18.0	14.9			17.6						15.8	15.8
Montenegro													29.0	
Netherlands	33.3	31.5	31.3	31.4	29.2	30.2	29.2	28.4	26.7	26.3	26.2	26.3	25.0	24.0
Norway	32.2	32.9	33.3	32.3	31.1	29.7	29.4	25.3	24.8	24.0	24.0	23.0	21.0	20.0
Poland			29.0	23.5			25.0		25.6	25.0	23.0			21.0
Portugal	6.7	8.7	15.0	8.6							11.8			
Republic of Moldova					2.0	2.0	2.0	1.8	1.8	3.7	7.1			
Romania		11.3	8.7	10.1			10.3						9.0	
Russian Federation			12.0	10.9	12.6	15.5		15.0						
San Marino			17.0											
Serbia				26.1							22.6			
Slovakia			16.3	14.7										
Slovenia			22.7	20.4		20.1				22.0	16.0	15.5		
Spain			20.8	24.7		24.6	22.4			21.5				21.3
Sweden	27.5	26.5	24.8	21.9	21.0	19.9	19.3	18.3	17.5	18.0	16.7	14.9	15.3	
Switzerland			22.8	28.0		21.0	23.0		20.0			18.0		
TFYR Macedonia				32.0										
Turkey		24.3					17.8				16.6		11.6	
Ukraine				20.5	14.0					6.0	6.3	6.3	5.9	
United Kingdom	34.0	30.5	27.7	26.7	25.0	25.0	25.0	24.0	23.0	22.0	21.0	19.0	20.0	
Uzbekistan							0.9							

Source: WHO Europe. Health for All Database (HFA-DB) <http://data.euro.who.int/hfad/>

Note: Where years are given as 5 year ranges, the figures are averages over the period. Blank cells indicate no data were available.

Figure 4.1a Prevalence of smoking, men aged 15 years and over, latest available year, Europe

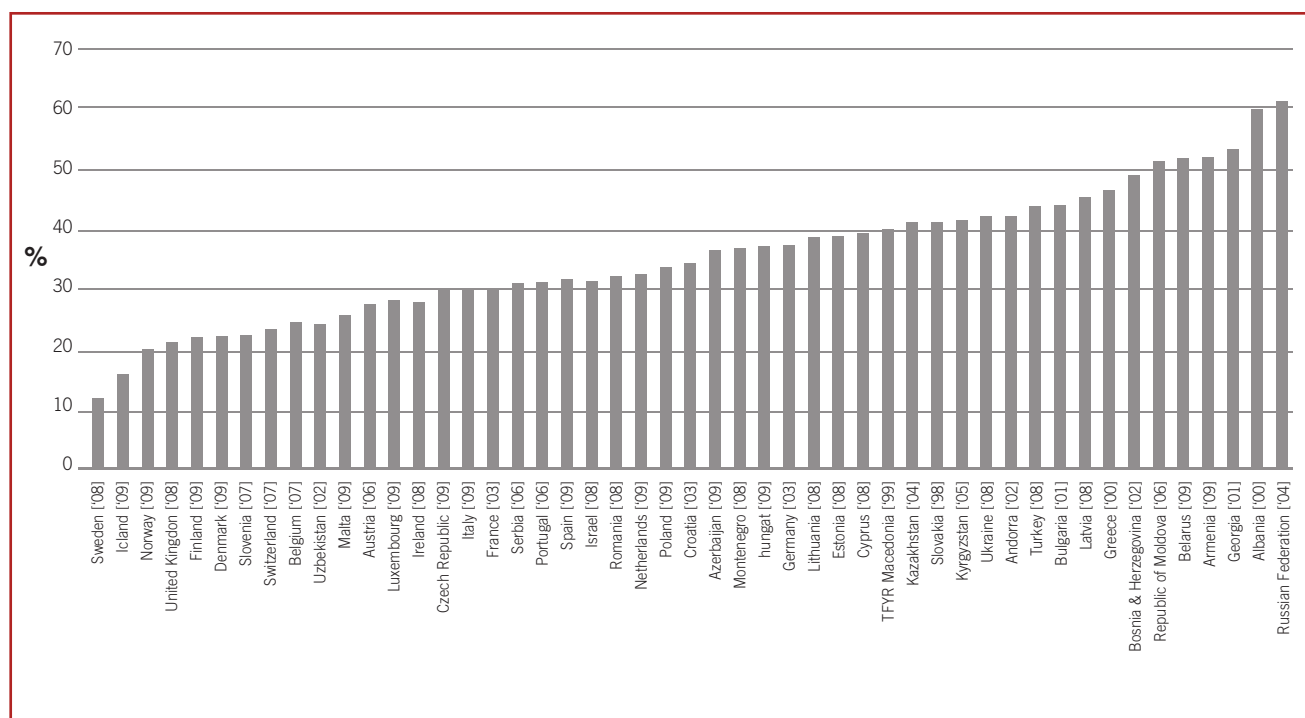


Figure 4.1b Prevalence of smoking, women aged 15 years and over, latest available year, Europe

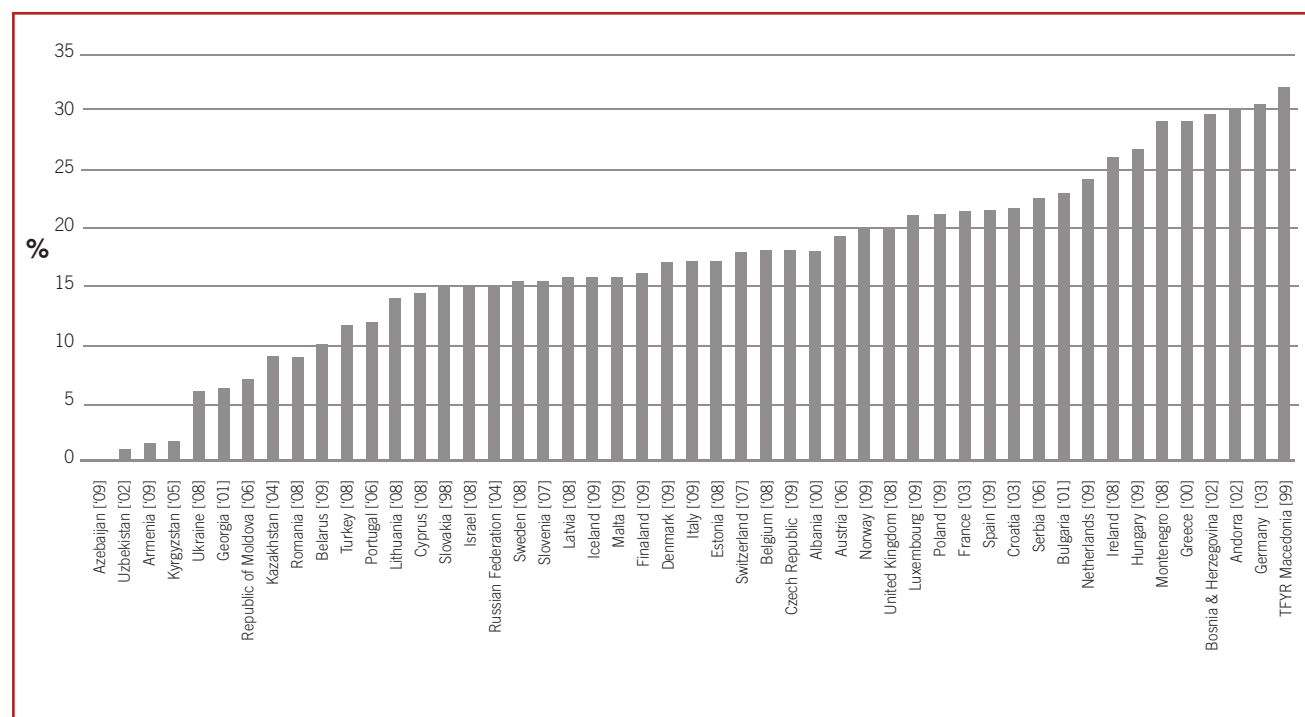


Figure 4.1c Prevalence of smoking, men, 1980 to 2010, selected countries

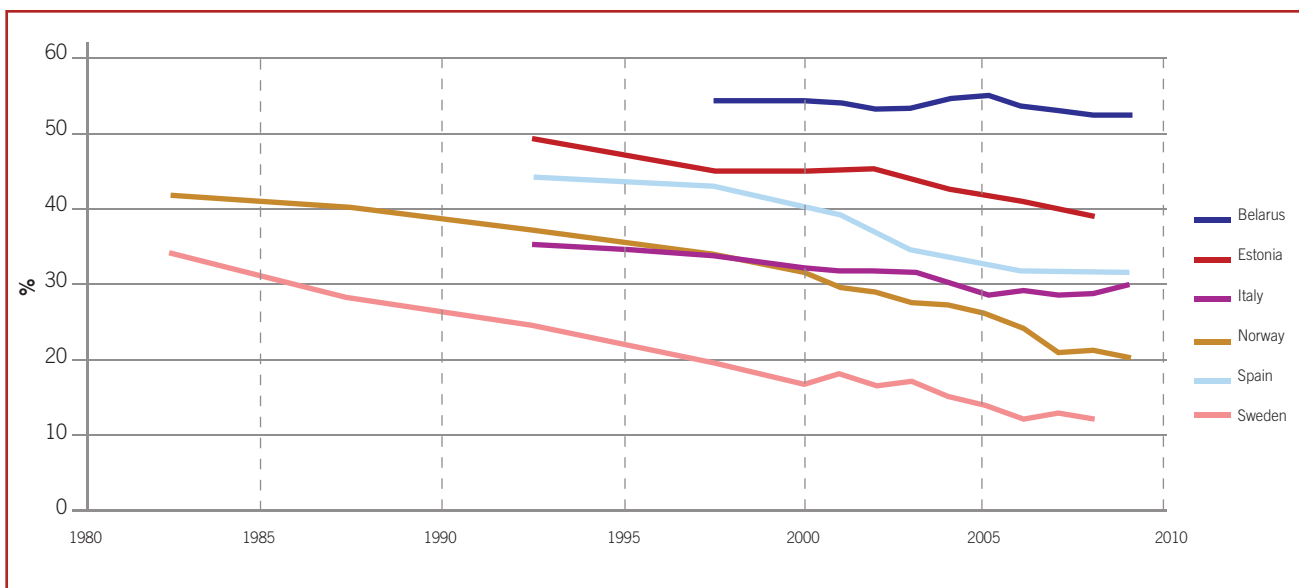


Figure 4.1d Prevalence of smoking, women, 1980 to 2010, selected countries

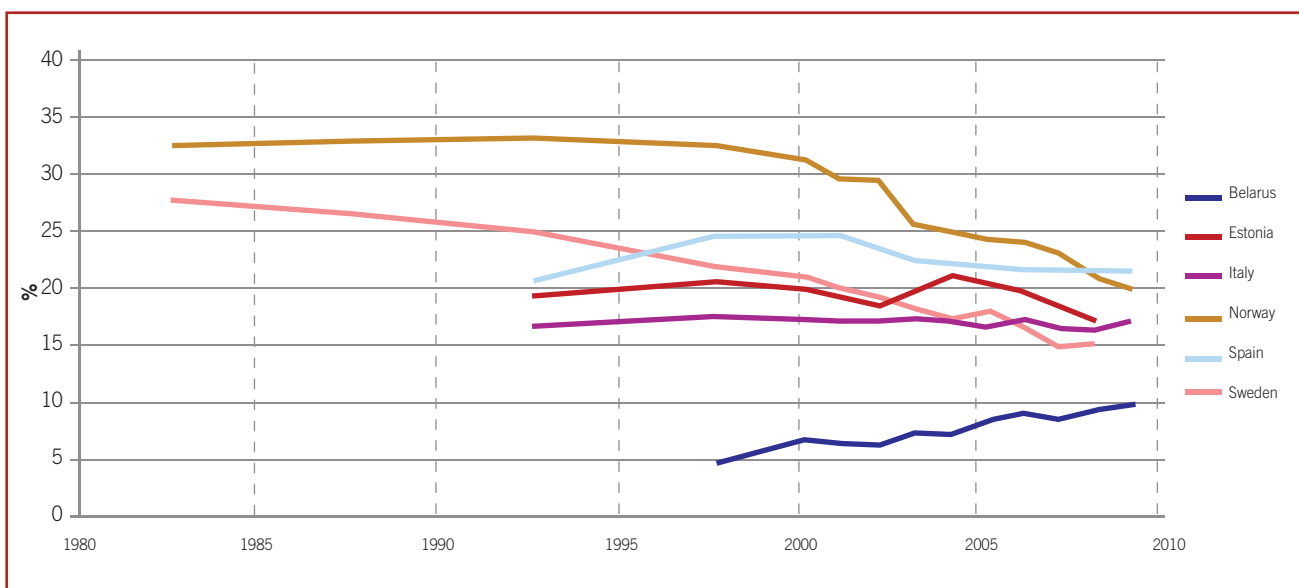


Table 4.2 Prevalence of smoking, 15 year olds, by sex, 1989/90 to 2009/10, Europe

	BOYS					GIRLS						
	1989/90 %	1993/94 %	1997/98 %	2001/02 %	2005/06 %	2009/10 %	1989/90 %	1993/94 %	1997/98 %	2001/02 %	2005/06 %	2009/10 %
Armenia						11						1
Austria	23	29	30	26	24	25	20	31	36	37	30	29
Belgium (Flemish)	15	32	28	23	18	15	17	18	28	23	17	16
Belgium (French)		23		22	14	16		21		24	17	17
Bulgaria				28							36	
Croatia				23	24	27				25	28	25
Czech Republic	16	16	22	29	20	22	12	12	18	31	23	28
Denmark	14	14	20	17	15	14	24	24	28	21	15	13
Estonia	22	24	24	27	22	22	6	6	12	18	19	16
Finland	33	30	25	28	23	20	32	26	29	32	21	19
France	23	23	28	26	17	20	25	25	31	27	21	20
Germany	21	21	28	32	17	15	29	29	33	34	22	15
Greece	18	14	18	14	17	18	20	19	19	14	16	13
Hungary	31	25	36	28	22	26	20	19	28	26	21	26
Iceland				14	14	9					13	7
Ireland			25	20	19	12			26	21	20	14
Israel			24	17	12				13	12	7	
Italy		9		22	20	22		9		25	20	23
Latvia		33	37	29	30	32		14	19	21	23	22
Lithuania		15	24	35	26	34		4	10	18	18	21
Luxembourg				17	17	22					21	19
Macedonia, TFYR				15	14	14				13	14	9
Malta				17	19					17	24	
Netherlands				23	16	15				24	21	17
Norway	21	20	23	20	9	9	23	21	28	27	12	8
Poland	20	23	27	26	19	16	10	13	20	17	14	12
Portugal			19	18	9	11			14	26	12	10
Romania				20	20	25					12	15
Russian Federation	19	19	24	27	27	19	10	10	22	19	21	15
Slovakia	19	19	28	18	18	21	5	5	18	15	15	17
Slovenia				30	20	20				30	16	19
Spain	18	20		24	14	15	27	27	15	32	20	23
Sweden	15	15	18	11	8	13	20	19	24	19	9	15
Switzerland		17	25	25	15	19		18	25	24	15	15
Ukraine				45	34	31				23	17	13
United Kingdom - England			25	21	13	9			33	28	18	14
United Kingdom - Northern Ireland	23	23	20						25	28		
United Kingdom - Scotland	16	21	22	16	14	14	18	26	28	23	23	15
United Kingdom - Wales	14	18	22	16	12	11	22	27	29	27	23	16

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

Notes: Smoking defined as smoking at least once a week. Data collected using representative national samples of schoolchildren, with the exception of France, Germany and the Russian Federation, where the samples were drawn from regions. In 1993/94 and 1997/98 these regions were Nancy and Toulouse, North Rhine-Westphalia, and St Petersburg respectively. In 2001/02 national samples were collected for France and the Russian Federation, and the regional sample for Germany was collected in Berlin, Hesse, North Rhine-Westphalia and Saxony. Blank cells indicate data were not available.

Figure 4.2a Prevalence of smoking, boys aged 15 years, 2009/10, Europe

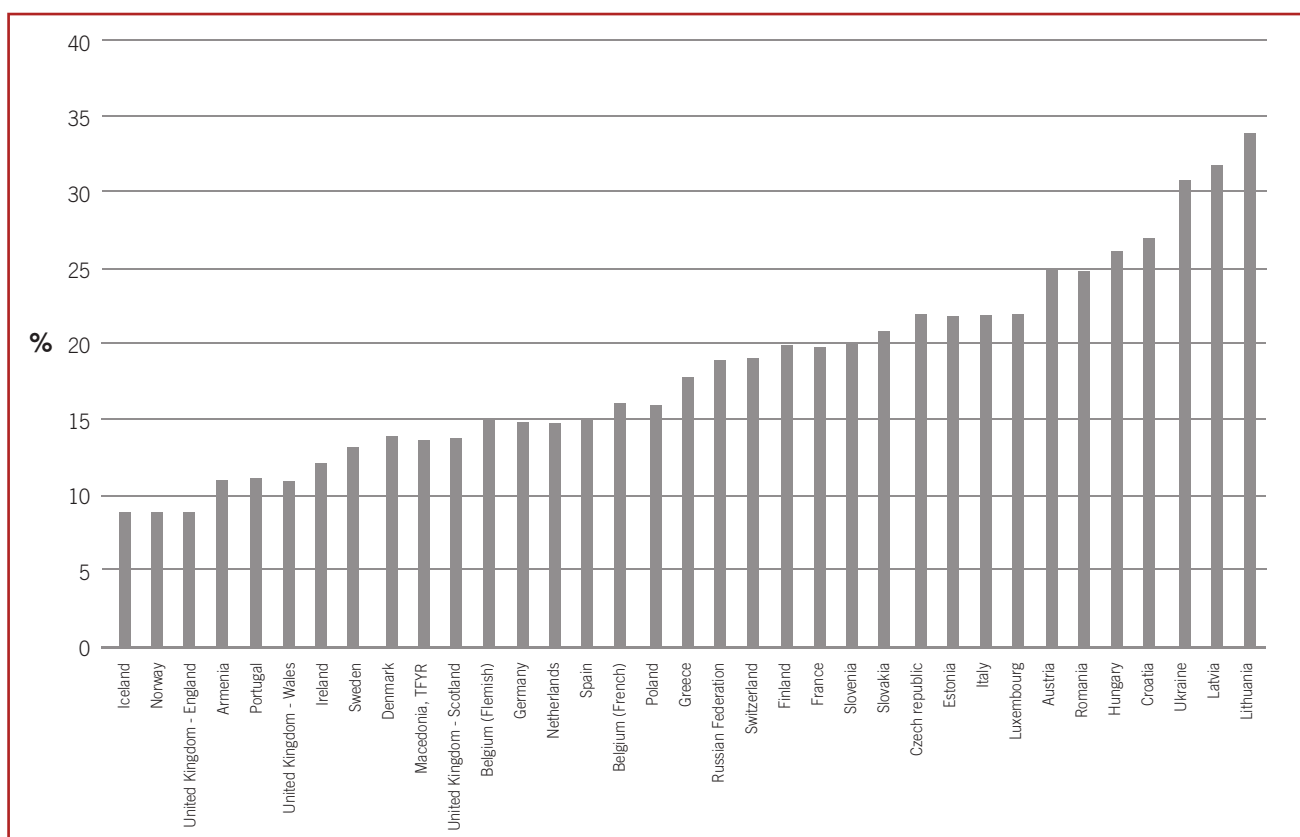


Figure 4.2b Prevalence of smoking, girls aged 15 years, 2009/10, Europe

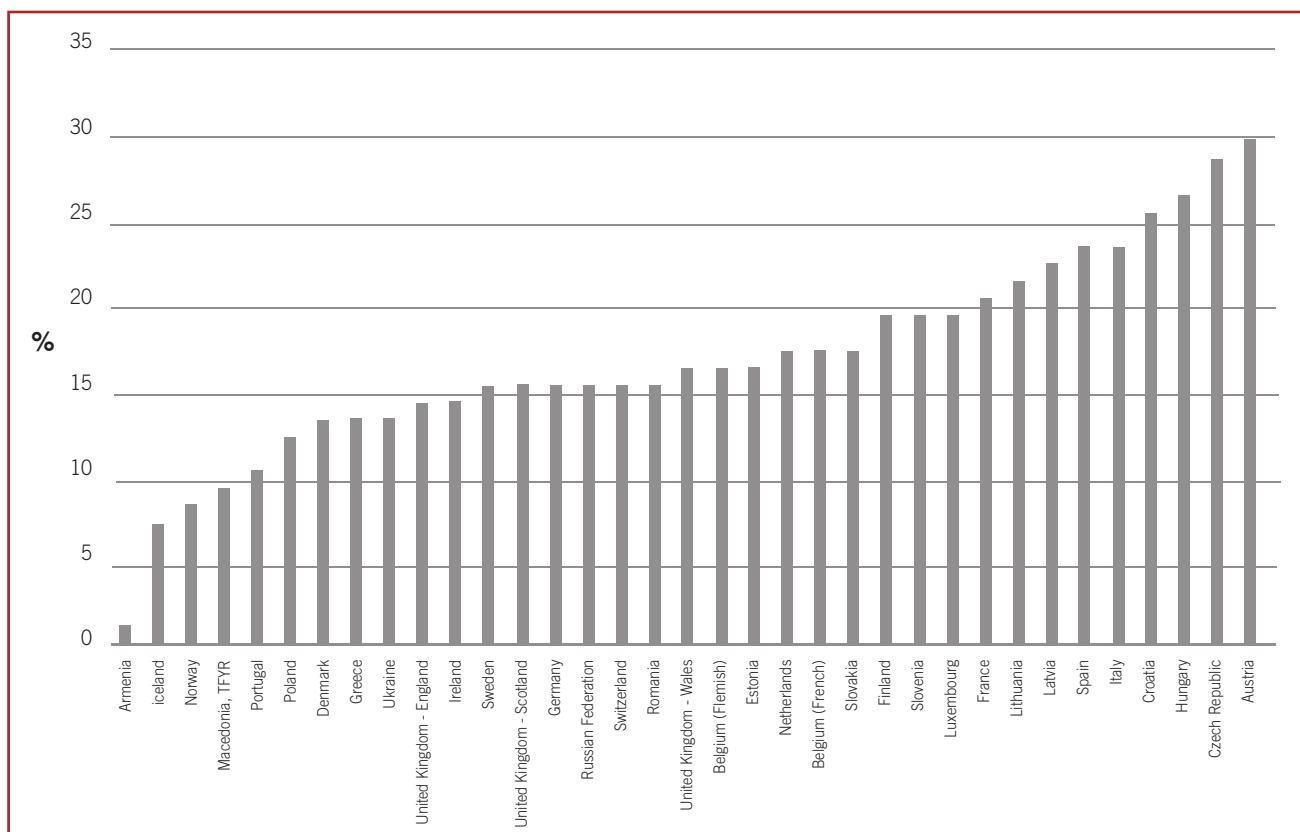


Figure 4.2c Change in smoking rates among 15 year olds, by sex, 1993/94 to 2009/10, Europe

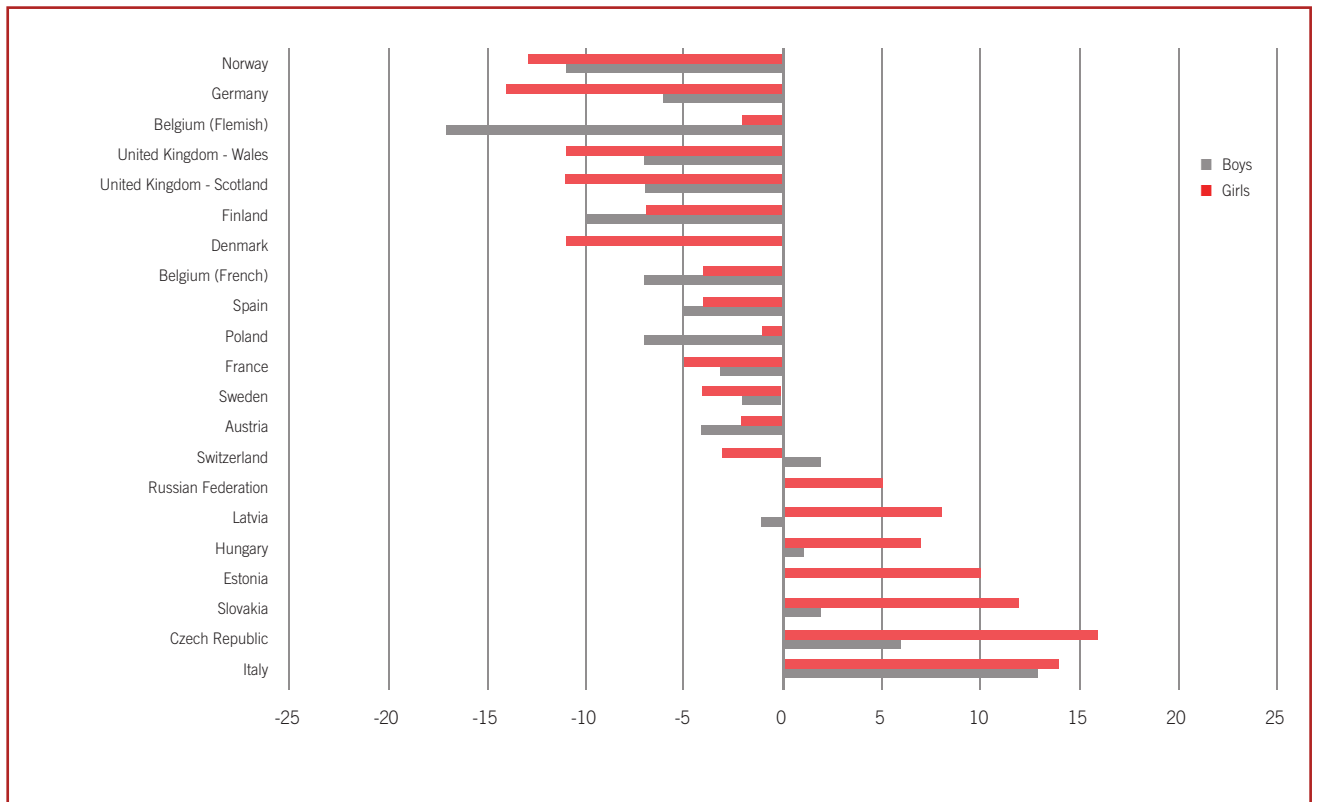


Table 4.3 Estimated number of deaths attributable to passive smoking, adults aged 20 and over, 2002, Europe

	Deaths attributed to passive smoking in all adults			Deaths attributed to passive smoking in non-smokers		
	CHD	Stroke	Total	CHD	Stroke	Total
Austria	426	310	1,029	146	69	268
Belgium	719	727	2,133	243	164	522
Czech Republic	1,455	1,346	3,501	526	313	956
Denmark	627	505	1,714	217	114	428
Estonia	217	225	499	57	45	108
Finland	274	271	659	82	59	159
France	1,902	1,997	5,863	510	392	1,114
Germany	7,536	4,892	15,609	2,452	1,085	4,000
Greece	791	1,282	2,416	238	288	568
Hungary	1,766	1,421	3,940	555	313	959
Iceland	20	11	40	6	2	9
Ireland	294	145	566	89	31	140
Italy	2,513	2,788	7,180	835	625	1,778
Latvia	703	673	1,507	243	151	414
Lithuania	800	420	1,362	240	86	345
Luxembourg	30	33	86	10	7	20
Malta	31	19	59	11	4	17
Netherlands	806	729	2,332	269	161	562
Norway	267	188	626	98	46	176
Poland	3,390	3,514	8,720	933	692	1,826
Portugal	368	939	1,519	145	271	457
Slovakia	995	469	1,733	362	109	519
Slovenia	108	124	303	37	30	79
Spain	2,082	2,328	6,305	680	517	1,498
Sweden	267	184	539	91	43	151
Switzerland	470	270	1,003	163	62	267
United Kingdom	4,950	3,520	10,944	1,526	769	2,690
EU-25	32,342	28,591	79,449	10,239	6,279	19,242

Source: Smoke Free Partnership and the European Heart Network (2006) *Lifting the smokescreen. 10 reasons for a smoke free Europe*. European Respiratory Society: Brussels.
Notes: Estimates based on population attributable proportions applied to routinely collected mortality data for passive smoking-related conditions. See source for details.

5. Diet

Diet is one of the most important modifiable risk factors for cardiovascular disease. Dietary changes can help prevent cardiovascular disease (primary prevention) and they can also help to prevent the progression of the disease in people who already have symptoms or have been identified as being at high risk (secondary prevention)¹. There is widespread consensus that significant action is needed to improve population diets to reduce the preventable burden of morbidity and mortality from CVD and other non-communicable diseases².

Key population dietary goals for the prevention of cardiovascular disease include: limiting intake of total dietary fat, particularly saturated and trans fats, limiting intake of salt (sodium), carbohydrate, added sugars, and specifically sugar-sweetened drinks, and increasing intakes of fruit and vegetables and dietary fibre, in addition to limited or moderate alcohol intake, maintenance of healthy body weight and participation in physical activity^{1,3}.

Despite the significance of diet in the prevention of CVD, high quality and comparable data on diets of European populations are sparse. Accurate measurement of food intake, and especially of nutrient intake, at the individual level is hampered by a range of limitations in assessment methods and often relies on individual recall of consumption.

National diets and food supply

'Food balance sheet' data, published by the Food and Agriculture Organization (FAO), is calculated from the food produced in and imported into countries minus the food exported, fed to animals, or otherwise not available for human consumption. This amount is then divided by the population size. The FAO data thus provide an estimate of average availability per person rather than actual food consumption. It is therefore likely to give figures which are higher than actual food consumption in wealthy countries where substantial amounts of food are wasted, and to give figures which are lower than actual consumption in countries where people grow crops or raise animals in their back gardens or smallholdings.

At the country level, food balance sheets can be used to give an indication of the food supply available, and allow comparison between countries. These country-level data show large differences between European countries in the total availability of food energy, fats, fruits and vegetables (Table 5.5 to 5.8). Total energy available per person in Austria, for example, was 80% more than in Tajikistan (Table 5.5). The largest quantity of vegetables available was in Armenia (819g per person per day), more than four times more than in Georgia, the Republic of Moldova, Bulgaria, Czech Republic and Iceland (Table 5.6). The largest quantity of fruit per person was available in Luxembourg (520g per person per day), ten times that in Tajikistan, and more than five times that in Kazakhstan and Ukraine (Table 5.7). The FAO recommends that fat should make up between a minimum of 15% and a maximum of 30 to 35% of total energy intake for adults⁴. No countries in Europe with available data showed less than 15% of dietary energy from fat, while 19 of 50 countries consumed between 15 and 30% energy from fat, and a further 8 countries consume between 30 and 35% of energy from fat (Table 5.8). Fat makes up 40% or more of the total energy in the food supply of Belgium, Cyprus, Switzerland, Spain and France.

Dietary patterns in adults

In the European Health Interview Survey, adults in 16 countries reported on their usual frequency of fruit and vegetable consumption. In general, around half to three quarters of respondents reported they consumed vegetables or fruit at least daily, with higher frequency of consumption more common among women (Tables 5.1 and 5.2). Fruit consumption was most common in Slovenia, where 82% of women and 67% of men reported consuming fruit at least daily, and lowest in Bulgaria (51% of women and 39% of men). Vegetable consumption was most common in Belgium, where 87% of women and 67% of men reported consuming vegetables at least daily, and lowest in Malta (58% of women and 43% of men).

Dietary patterns in children and adolescents

In the 35 European countries included in the Health Behaviour of School-aged Children survey, only in Portugal and Denmark did more than half of the 11 year old children report eating fruit daily, while for 13 and 15 year olds, fewer than half consumed fruit daily in all countries surveyed (Table 5.4). The situation was similar for vegetable consumption (Table 5.3).

A greater proportion of girls than boys reported daily consumption of both fruits and of vegetables in all countries (Tables 5.3 and 5.4, Figures 5.3 and 5.4). Generally, daily vegetable consumption appeared to decrease slightly with age, from 32% of boys and 40% of girls at age 11, to 26% of boys and 35% of girls at age 15 (Tables 5.3 and 5.4).

Trends in diets

FAO data show that over the past twenty years, fruit and vegetable intake has increased across much of Europe. Vegetable consumption has generally stayed relatively stable in Southern Europe (where intakes have historically been very high, as much as double other regions of Europe) and Western Europe. Vegetable consumption in Northern Europe, while still low, has increased gradually in recent decades, while consumption in Eastern European countries has increased markedly since the mid-1990s, to now equal Europe-wide average consumption (Table 5.6 and Figure 5.6).

In line with worldwide trends, fruit consumption has increased substantially over the last twenty years in all European regions except Western Europe (Table 5.7 and Figure 5.7). Fruit consumption in the countries of Northern Europe has increased most dramatically, now equalling the high consumption levels of Southern Europe.

The amount of fat in the food supply has remained relatively stable in Europe overall in the last decade, generally showing small increases over time (Table 5.8). Several countries of Eastern Europe and the former Soviet Union, however, have experienced very large increases in the amount of fat available per person. In Armenia, for instance, there was an increase from 43 to 63 g of fat per person per day in the food supply between 2000 and 2007 (Table 5.8). There were similar, but less pronounced trends in the percentage of energy from fat, suggesting that large increases in fat availability have usually been accompanied by concurrent increases in overall dietary energy availability in the national food supply.

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- 1 European Heart Network. *Diet, Physical Activity and Cardiovascular Disease Prevention in Europe*. <http://www.ehnheart.org/publications/publications/publication/521-diet-physical-activity-and-cardiovascular-disease-prevention.html>. Brussels: European Heart Network, 2011.
 - 2 Waxman A. WHO global strategy on diet, physical activity and health. *Food Nutr Bull* 2004;25(3):292-302.
 - 3 Perk J, De Backer G, Gohlke H, Graham I, Reiner Z, Verschuren M, et al. *European Guidelines on cardiovascular disease prevention in clinical practice (version 2012): The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice*. *Eur Heart J* 2012;33(13):1635-701.
 - 4 Food and Agriculture Organization of the United Nations. *Fats and fatty acids in human nutrition: Report of an expert consultation*. <http://foris.fao.org/preview/25553-0e4cb94ac52f9a25af77ca5cfba7a8c.pdf>. Rome: FAO, 2010.

Table 5.1 Frequency of vegetable consumption, adults, by sex, Europe

	Twice or more a day (%)	Once a day (%)	Less than once a day but at least 4 times a week (%)	Less than 4 times a week but at least once a week (%)	Less than once a week (%)	Never (%)
Men						
Belgium	10.2	72.5	6.0	9.8	0.9	0.7
Bulgaria	12.5	46.7	11.1	22.6	6.9	0.3
Czech Republic	15.5	37.6	15.5	24.8	4.2	2.5
Cyprus	18.1	48.3	11.8	18.2	2.8	0.7
Estonia	*	47.7	27.2	21.9	*	3.2
France	44.6	28.8	12.7	9.8	3.0	1.1
Greece	15.9	46.4	17.4	15.1	4.2	1.0
Hungary	13.2	35.2	19.6	25.4	5.7	0.9
Latvia	12.2	46.8	9.4	27.9	3.2	0.5
Malta	14.6	28.6	24.9	22.4	5.8	3.8
Poland	13.1	46.1	16.1	20.6	3.9	0.3
Romania	15.1	36.1	14.1	28.8	5.7	0.3
Slovakia	10.4	33.8	18.5	29.5	7.0	0.8
Slovenia	17.5	53.8	10.5	14.2	2.8	1.3
Spain	12.5	43.5	15.0	23.4	3.7	1.8
Turkey	12.2	47.6	14.2	19.3	5.8	1.0
Women						
Belgium	16.0	71.4	4.4	6.8	1.0	0.3
Bulgaria	14.9	44.1	10.9	23.4	6.4	0.3
Czech Republic	26.1	39.8	10.9	20.1	2.5	0.7
Cyprus	21.9	47.8	10.8	16.5	2.1	0.9
Estonia	*	55.0	21.7	20.7	*	2.6
France	53.5	26.6	9.6	7.5	2.2	0.7
Greece	17.8	47.5	13.9	15.6	4.0	1.2
Hungary	17.8	38.6	16.3	22.3	4.2	0.9
Latvia	17.6	48.8	7.2	24.1	2.2	0.2
Malta	22.9	34.6	16.7	19.0	4.4	2.4
Poland	17.5	49.0	12.7	18.1	2.6	0.2
Romania	18.9	37.5	11.5	27.0	5.0	0.2
Slovakia	17.3	41.0	10.7	28.0	2.7	0.4
Slovenia	22.2	56.4	6.6	12.0	1.5	1.3
Spain	19.0	48.1	9.5	19.7	2.4	1.4
Turkey	14.1	48.9	12.7	17.7	5.7	0.9

Source: European Commission, Eurostat database, European Health Interview Survey http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
 Notes: Data are self-reported and were collected between 2006 and 2009. *Indicates data are not available.

Table 5.2 Frequency of fruit consumption, adults, by sex, Europe

	Twice or more a day (%)	Once a day (%)	Less than once a day but at least 4 times a week (%)	Less than 4 times a week but at least once a week (%)	Less than once a week (%)	Never (%)
Men						
Belgium	21.8	36.1	20.6	7.1	10.2	4.3
Bulgaria	7.3	32.1	18.0	28.5	12.9	1.2
Czech Republic	20.6	36.7	10.8	25.0	5.8	1.2
Cyprus	25.1	38.0	12.7	17.1	5.9	1.2
Estonia	*	47.7	29.1	17.7	*	5.5
France	38.1	21.4	17.3	9.6	9.3	4.3
Greece	19.8	39.2	18.5	12.4	7.4	2.8
Hungary	25.8	35.5	14.3	18.5	5.4	0.6
Latvia	12.8	39.5	12.7	29.6	4.8	0.7
Malta	35.7	33.4	11.9	12.4	3.3	3.4
Poland	17.0	38.3	19.4	16.9	7.8	0.7
Romania	13.9	27.4	18.1	27.1	12.9	0.7
Slovakia	15.4	38.4	13.4	26.1	6.1	0.6
Slovenia	29.0	37.8	14.8	11.5	5.3	1.6
Spain	33.1	32.9	11.1	14.2	5.1	3.7
Turkey	9.9	40.8	18.5	19.5	9.6	1.7
Women						
Belgium	32.8	35.3	15.4	7.1	6.6	2.8
Bulgaria	13.2	37.3	15.7	23.9	9.4	0.6
Czech Republic	34.8	39.7	6.9	15.4	2.7	0.6
Cyprus	29.5	38.8	11.1	14.6	4.6	1.3
Estonia	*	64.3	16.6	16.3	*	2.9
Greece	22.1	40.2	16.6	11.5	7.4	2.3
France	50.7	20.7	12.5	7.9	5.2	3.0
Latvia	22.6	44.0	8.5	21.3	3.3	0.4
Hungary	35.4	39.2	8.0	13.0	4.1	0.4
Malta	51.8	26.4	7.9	9.1	2.6	2.2
Poland	22.3	44.5	13.3	14.5	4.8	0.6
Romania	19.4	29.8	15.4	25.1	9.9	0.4
Slovakia	28.5	45.3	7.1	17.3	1.6	0.3
Slovenia	44.7	37.6	7.5	7.8	1.9	0.6
Spain	43.2	31.3	8.9	10.7	3.5	2.4
Turkey	11.5	41.9	16.7	18.5	9.4	2.1

Source: European Commission, Eurostat database, European Health Interview Survey http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
 Notes: Data are self-reported and were collected between 2006 and 2009. *Indicates data are not available.

Table 5.3 Daily vegetable consumption, children aged 11, 13 and 15 years, by sex, 2009/10, Europe

	11 year olds		13 year olds		15 year olds	
	Boys (%)	Girls (%)	Boys (%)	Girls (%)	Boys (%)	Girls (%)
Armenia	27	31	26	33	33	37
Austria	25	33	20	30	12	23
Belgium (Flemish)	50	56	51	65	46	61
Belgium (French)	45	45	45	53	46	59
Croatia	27	31	21	23	19	23
Czech Republic	30	43	27	34	21	36
Denmark	41	52	37	41	33	49
England	35	45	37	44	34	41
Estonia	20	24	20	19	16	21
Finland	26	30	19	26	14	35
France	47	52	42	47	38	47
Germany	21	32	18	31	17	33
Greece	33	37	28	36	25	33
Hungary	26	33	24	29	20	22
Iceland	25	36	21	29	19	27
Ireland	39	48	37	44	39	42
Italy	20	27	22	27	20	26
Latvia	27	31	21	27	16	25
Lithuania	28	39	21	26	20	28
Luxembourg	36	40	28	33	24	32
TFYR Macedonia	38	44	30	41	27	38
Netherlands	41	52	39	45	35	42
Norway	31	37	27	28	23	33
Poland	26	35	23	28	21	30
Portugal	30	35	24	29	19	28
Romania	35	44	28	36	21	32
Russian Federation	33	35	33	30	28	29
Scotland	35	43	33	38	31	37
Slovakia	31	34	25	29	20	25
Slovenia	27	32	20	28	17	26
Spain	23	25	18	24	15	24
Sweden	36	47	30	36	30	39
Switzerland	42	50	38	46	34	45
Turkey	26	36	27	36	21	31
Ukraine	46	55	40	50	37	44
Wales	29	33	30	36	30	34

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

Table 5.4 Daily fruit consumption, children aged 11, 13 and 15 years, by sex, 2009/10, Europe

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

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

Figure 5.3 Daily vegetable consumption, 15 year olds, by sex, 2009/10, Europe

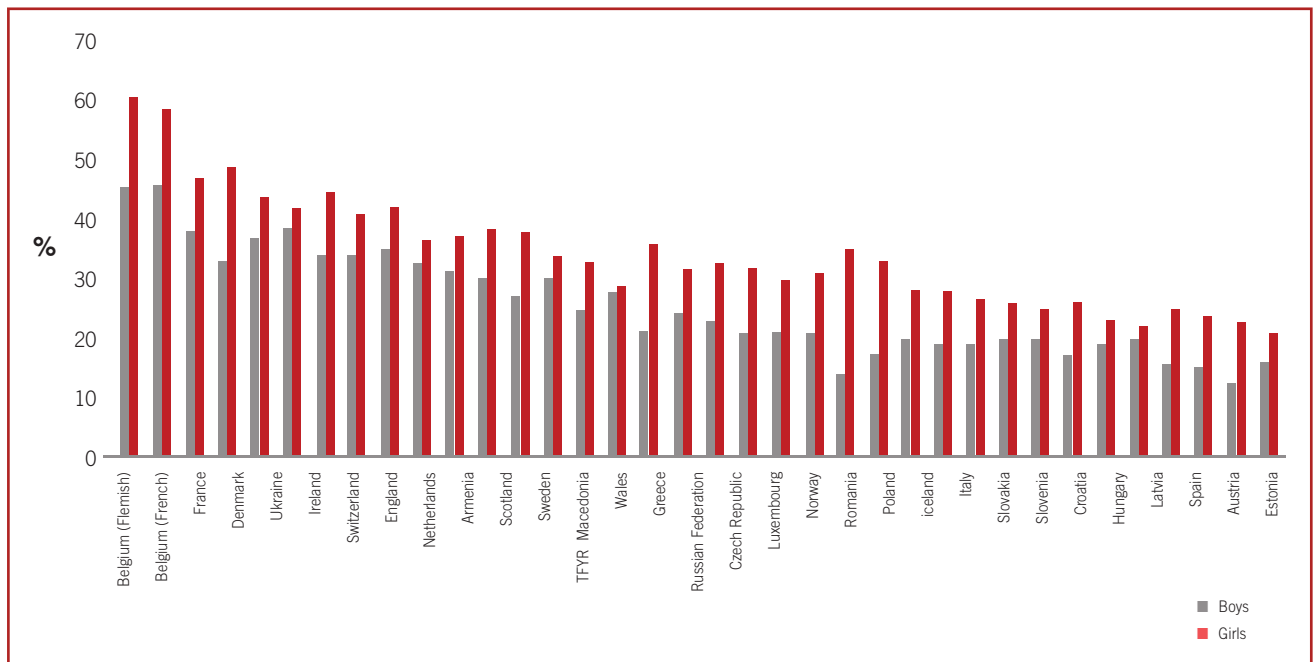


Figure 5.4 Daily fruit consumption, 15 year olds, by sex, 2009/10, Europe

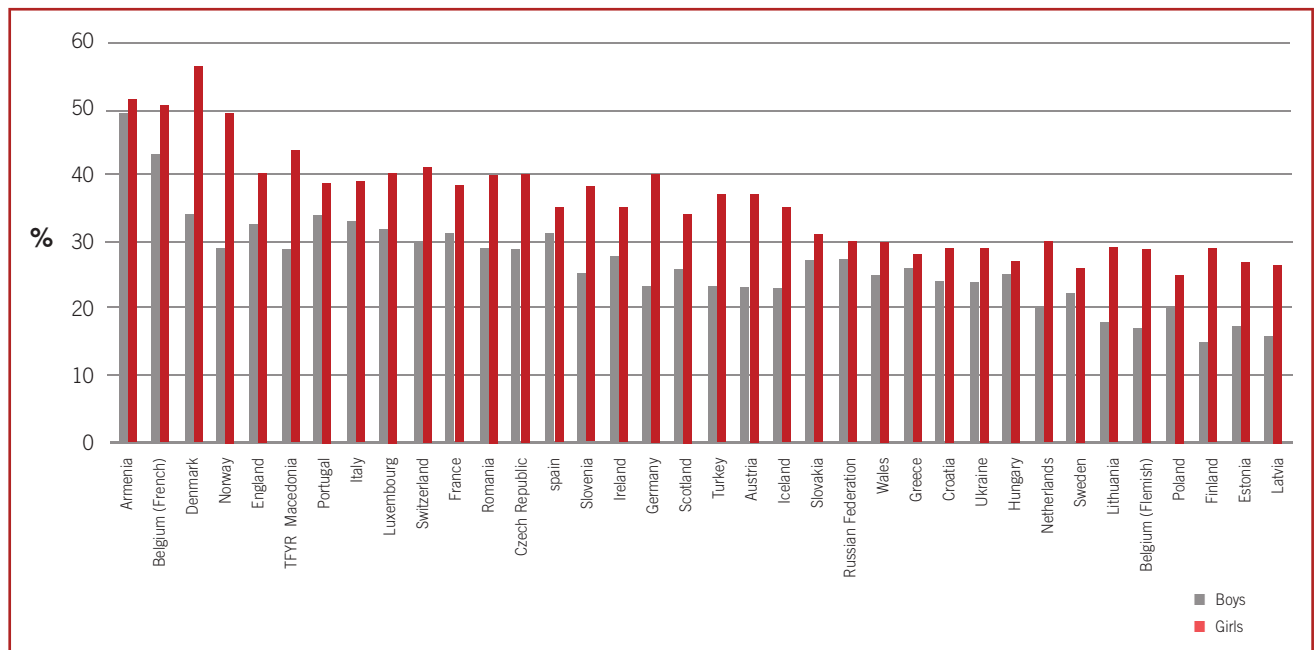


Table 5.5 Total energy consumption, 1970 to 2007, Europe

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000	2001	2002	2003	2004	2005	2006	2007
Albania	2,428	2,691	2,740	2,635	2,698	2,847	2,832	2,861	2,865	2,838	2,849	2,917	2,915	2,880
Armenia					1,883	2,086	2,133	2,150	2,151	2,295	2,150	2,270	2,280	2,280
Austria	3,241	3,224	3,363	3,423	3,546	3,672	3,809	3,817	3,744	3,714	3,716	3,701	3,760	3,819
Azerbaijan					2,207	2,185	2,406	2,648	2,747	2,895	2,895	3,001	3,027	2,961
Belarus					3,161	3,202	2,989	3,040	2,969	2,778	2,898	2,953	3,158	3,146
Belgium					2,567	2,860	2,707	2,873	2,864	2,944	3,076	3,091	3,082	3,078
Bosnia and Herzegovina					3,008	2,805	2,815	2,773	2,772	2,774	2,768	2,768	2,749	2,766
Bulgaria	3,488	3,555	3,628	3,650	3,373	2,526	2,535	2,677	2,792	2,885	2,970	2,992	2,978	2,990
Croatia					3,166	3,234	3,207	3,193	3,203	3,188	3,201	3,214	3,202	3,181
Cyprus	2,899	2,620	2,898	3,001	3,017	3,231	3,080	3,166	3,245	3,313	3,379	3,366	3,324	3,260
Czech Republic					3,252	3,357	3,329	3,365	3,402	3,372	3,442	3,372	3,404	3,416
Denmark	3,104	3,014	3,080	3,190	2,620	3,021	3,064	3,045	3,025	3,042	3,060	3,107	3,127	3,154
Estonia					3,093	3,108	3,161	3,178	3,154	3,154	3,185	3,207	3,217	3,221
Finland	3,154	3,089	3,047	3,042	3,530	3,556	3,603	3,644	3,665	3,599	3,569	3,586	3,541	3,532
France	3,276	3,326	3,422	3,520	1,721	2,354	2,374	2,529	2,609	2,709	2,828	2,855	2,725	2,859
Georgia					3,171	3,365	3,473	3,478	3,521	3,495	3,496	3,524	3,519	3,547
Germany	3,245	3,337	3,390	3,496	3,560	3,560	3,620	3,672	3,691	3,680	3,713	3,697	3,678	3,725
Greece	3,321	3,392	3,504	3,663	3,513	3,292	3,381	3,394	3,404	3,401	3,460	3,387	3,463	3,465
Hungary	2,986	3,074	3,210	3,185	3,098	3,102	3,153	3,139	3,225	3,263	3,311	3,309	3,319	3,362
Iceland	3,479	3,519	3,571	3,594	3,598	3,646	3,724	3,722	3,577	3,591	3,546	3,433	3,552	3,612
Ireland	3,201	3,162	3,199	3,352	3,384	3,452	3,494	3,545	3,634	3,573	3,573	3,573	3,519	3,527
Israel	3,479	3,438	3,449	3,493	3,532	3,589	3,709	3,691	3,693	3,675	3,706	3,675	3,649	3,646
Italy					3,247	2,830	2,979	2,922	2,922	2,971	3,033	3,214	3,372	3,490
Kazakhstan					2,497	2,506	2,396	2,449	2,471	2,612	2,727	2,744	2,629	2,644
Kyrgyzstan					3,274	2,930	2,799	2,898	3,070	2,938	2,963	3,054	3,041	2,962
Latvia					2,876	3,079	3,349	3,362	3,342	3,351	3,442	3,408	3,413	3,436
Lithuania					3,258	3,487	3,613	3,607	3,699	3,695	3,721	3,705	3,670	3,681
Luxembourg					3,178	3,487	3,460	3,459	3,496	3,486	3,580	3,571	3,594	3,611
Malta	3,145	3,290	3,194	3,178	3,258	3,487	3,460	3,459	3,496	3,486	3,580	3,571	3,594	3,611
Montenegro					3,258	3,487	3,460	3,459	3,496	3,486	3,580	3,571	3,594	3,611
Netherlands	3,139	3,132	3,151	3,162	3,258	3,269	3,215	3,235	3,233	3,181	3,220	3,232	3,218	3,278
Norway	3,138	3,237	3,292	3,252	3,248	3,315	3,363	3,385	3,442	3,425	3,458	3,481	3,421	3,464
Poland	3,465	3,578	3,390	3,444	3,340	3,333	3,409	3,410	3,422	3,384	3,354	3,377	3,394	3,421
Portugal	3,026	2,939	2,816	3,207	3,434	3,586	3,572	3,568	3,568	3,597	3,598	3,591	3,574	3,584
Republic of Moldova					3,061	2,644	2,544	2,710	2,797	2,734	2,836	2,943	3,008	2,771
Romania	3,037	3,227	3,093	2,962	2,991	3,091	3,178	3,276	3,365	3,425	3,419	3,514	3,562	3,455
Russian Federation					2,962	2,878	2,884	2,998	3,047	3,108	3,143	3,226	3,213	3,376
Serbia					2,917	2,938	2,796	2,801	2,786	2,772	2,815	2,858	2,904	2,893
Slovakia					2,804	2,978	3,052	3,058	3,079	3,106	3,182	3,226	3,212	3,223
Slovenia					3,323	3,337	3,378	3,362	3,373	3,347	3,345	3,308	3,322	3,272
Spain	2,838	3,014	3,057	3,167	3,233	3,337	3,378	3,362	3,373	3,347	3,345	3,308	3,322	3,272
Sweden	2,879	2,962	2,995	2,955	3,038	3,084	3,100	3,121	3,113	3,114	3,104	3,126	3,112	3,110
Switzerland	3,478	3,369	3,454	3,397	3,351	3,314	3,435	3,373	3,405	3,412	3,394	3,369	3,428	3,465
Tajikistan					2,049	1,940	1,912	1,863	1,945	2,041	2,098	2,081	2,181	2,118
TFYR Macedonia					2,501	2,728	2,806	2,700	2,807	2,823	2,971	2,869	2,974	3,105
Turkey	3,057	3,166	3,252	3,531	3,586	3,486	3,481	3,440	3,430	3,413	3,434	3,434	3,495	3,517
Turkmenistan					2,629	2,560	2,609	2,672	2,727	2,727	2,749	2,771	2,771	2,731
Ukraine					3,197	2,830	2,897	2,989	3,048	3,052	3,191	3,216	3,251	3,224
United Kingdom	3,210	3,142	3,119	3,219	3,234	3,309	3,370	3,416	3,434	3,418	3,451	3,431	3,437	3,458
Uzbekistan					2,672	2,583	2,381	2,273	2,298	2,359	2,392	2,477	2,516	2,581
Europe	3,270	3,310	3,330	3,377	3,258	3,209	3,249	3,298	3,327	3,325	3,352	3,372	3,369	3,406
European Union	3,223	3,260	3,289	3,367	3,351	3,374	3,433	3,457	3,476	3,455	3,465	3,466	3,455	3,466

Source: Food and Agriculture Organization of the United Nations (FAO) FAOstat.org <http://faostat3.fao.org/home/index.html>

Notes: Dietary energy consumption per person refers to the amount of food, expressed in kilocalories (kcal) per day, available for each individual in the total population during the reference period. Caloric content is derived by applying the appropriate food composition factors to the quantities of the commodities. Per person supplies are derived from the total amount of food available for human consumption by dividing total calories by total population actually partaking of the food supplies during the reference period. However, per person figures represent only the average supply available for the population as a whole and do not necessarily indicate what is actually consumed by individuals. The actual food consumption may be lower than the quantity shown as food availability depending on the magnitude of wastage and losses of food in the household, e.g. during storage, in preparation and cooking, as plate-waste or quantities fed to domestic animals and pets, thrown or given away. Where 5-year ranges are given, values are averages of available data for the 5 years. Blank cells indicate data were not available.

Figure 5.5a Total energy consumption, 1970 to 2007, by region, Europe

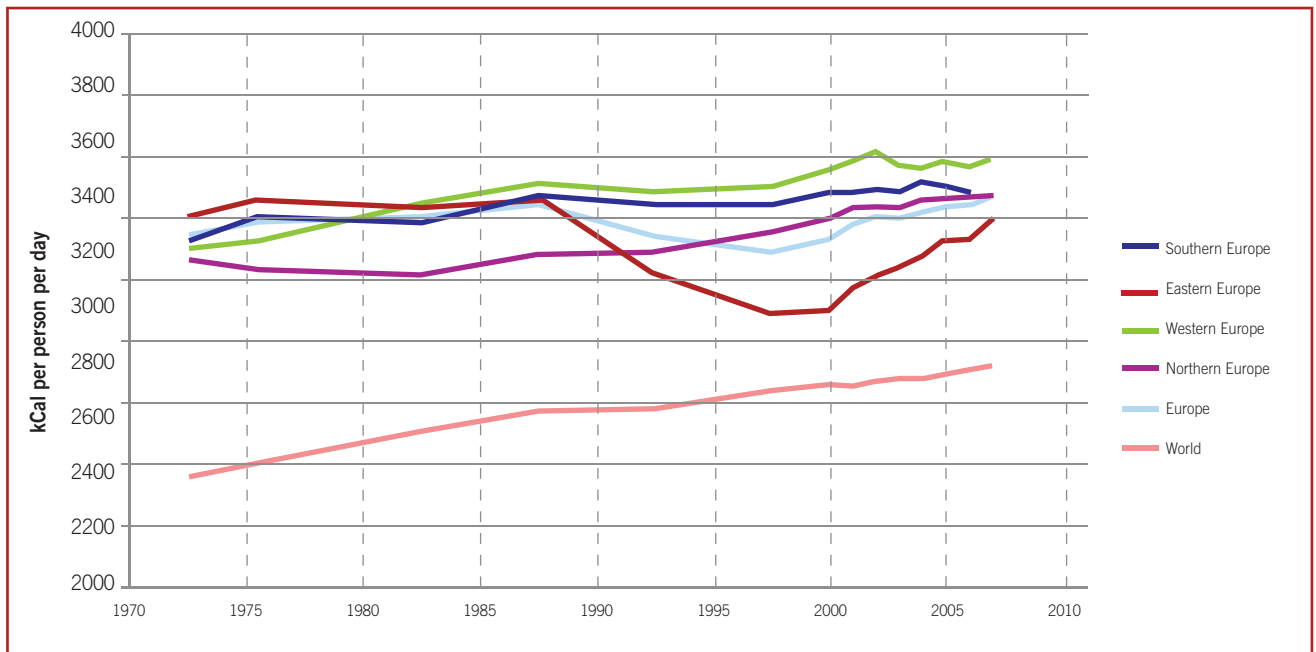


Figure 5.5b Total energy consumption, 2007, Europe

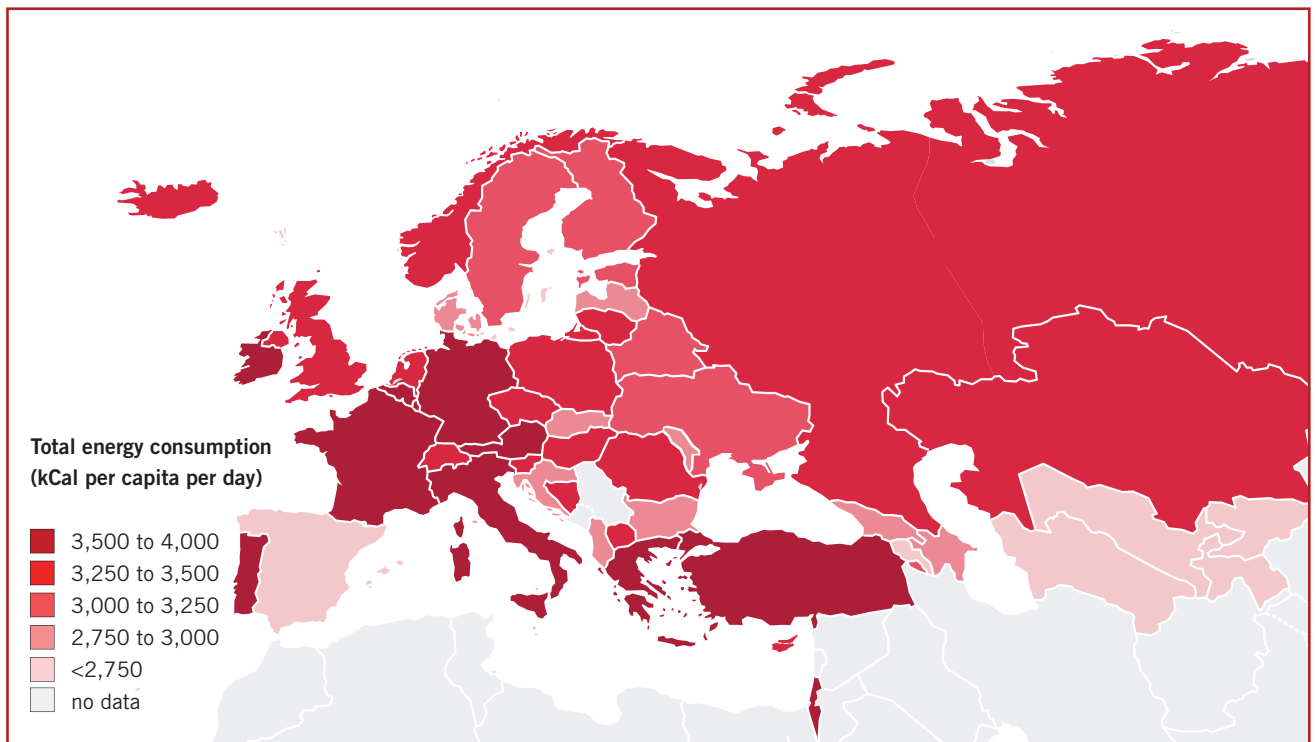


Table 5.6 Vegetable consumption, 1970 to 2007, Europe

	1970-74	1975-79	1980-84	1985-89	1990-94	Quantity (g per person per day)					2007			
						1995-99	2000	2001	2002	2003	2004	2005	2006	2007
Albania	208	221	230	187	346	453	460	476	498	531	523	523	528	507
Armenia					334	329	386	400	463	463	589	630	753	819
Austria	199	221	215	186	186	221	222	255	246	249	279	255	257	260
Azerbaijan					155	199	271	326	375	424	430	444	446	411
Belarus					214	239	257	271	285	296	326	353	372	383
Belgium					388	495	320	309	334	334	334	326	326	320
Bosnia and Herzegovina					318	377	476	482	493	490	564	559	580	539
Bulgaria	284	325	360	368	312	377	386	312	285	370	298	175	233	203
Croatia					182	273	285	309	334	271	241	197	241	252
Cyprus	376	300	293	360	391	446	435	452	449	427	416	435	422	411
Czech Republic					190	211	208	205	200	194	192	216	211	203
Denmark	126	142	176	218	204	221	246	246	257	268	279	266	271	266
Estonia					157	174	186	214	211	268	225	222	219	263
Finland	58	80	101	140	166	189	194	192	197	197	205	214	203	216
France	332	314	310	336	327	293	298	293	309	296	285	285	268	268
Georgia					189	236	205	219	225	227	230	249	156	164
Germany	170	181	194	207	209	232	246	255	252	246	255	238	244	257
Greece	640	669	723	715	736	745	791	772	723	789	827	717	649	657
Hungary	268	275	254	260	251	315	312	312	318	315	329	307	350	301
Iceland	45	56	72	88	99	129	140	145	145	156	167	178	197	205
Ireland	125	197	199	182	212	203	200	222	222	219	203	197	216	216
Israel	458	423	420	463	531	647	638	611	632	605	630	531	485	487
Italy	433	432	467	474	477	486	531	444	408	479	534	496	427	413
Kazakhstan					148	169	244	315	359	400	413	438	424	427
Kyrgyzstan					162	211	353	389	293	361	361	361	405	375
Latvia					222	217	194	263	257	304	290	298	301	293
Lithuania					186	225	263	255	233	277	287	315	238	263
Luxembourg					222	222	241	241	230	246	222	233	241	235
Malta	275	320	342	334	341	489	542	539	534	526	605	561	597	605
Montenegro					214	215	257	274	230	203	271	235	255	282
Netherlands	220	214	197	211	214	168	164	186	186	200	203	200	205	214
Norway	132	134	155	157	159	336	348	323	271	293	326	312	309	356
Poland	271	290	303	318	290	336	327	327	327	327	327	327	327	327
Portugal	354	364	327	388	434	485	482	504	449	430	504	463	405	465
Republic of Moldova	0	0	0	0	254	205	279	246	246	268	233	285	372	186
Romania	289	375	474	423	331	399	408	452	446	534	545	507	528	413
Russian Federation					202	217	241	246	252	263	277	290	298	309
Serbia					194	231	225	211	189	203	222	205	339	282
Slovakia					163	196	205	189	203	211	227	238	238	244
Slovenia					494	434	449	424	446	424	444	430	405	424
Spain	439	476	459	484	484	434	449	424	446	424	444	430	405	424
Sweden	106	120	135	157	179	192	203	211	211	216	233	233	246	241
Switzerland	222	233	262	249	249	261	274	266	268	257	260	238	241	246
Tajikistan					281	197	170	200	225	257	279	296	329	298
TFYR Macedonia					447	477	517	542	438	435	408	386	392	430
Turkey	426	468	485	527	560	624	624	624	660	649	624	646	624	611
Turkmenistan					257	250	279	235	326	356	356	381	386	359
Ukraine					240	255	279	287	298	315	318	334	370	326
United Kingdom	209	209	221	228	239	233	238	260	244	252	246	263	255	249
Uzbekistan					379	301	296	318	323	356	339	353	430	465
Europe	265	278	295	300	285	295	312	307	301	315	331	323	320	318
European Union	286	298	313	325	322	324	339	329	318	331	350	331	318	320

Source: Food and Agriculture Organization of the United Nations (FAO) [FAOstat.org http://faostat3.fao.org/home/index.html](http://faostat3.fao.org/home/index.html)

Notes: The actual food consumption may be lower than the quantity shown as food availability depending on the magnitude of wastage and losses of food in the household, e.g. during storage, in preparation and cooking, as plate-waste or quantities fed to domestic animals and pets, thrown or given away. Where 5-year ranges are given, values are averages of available data for the 5 years. Blank cells indicate data were not available.

Figure 5.6a Vegetable consumption, 1970 to 2007, by region, Europe

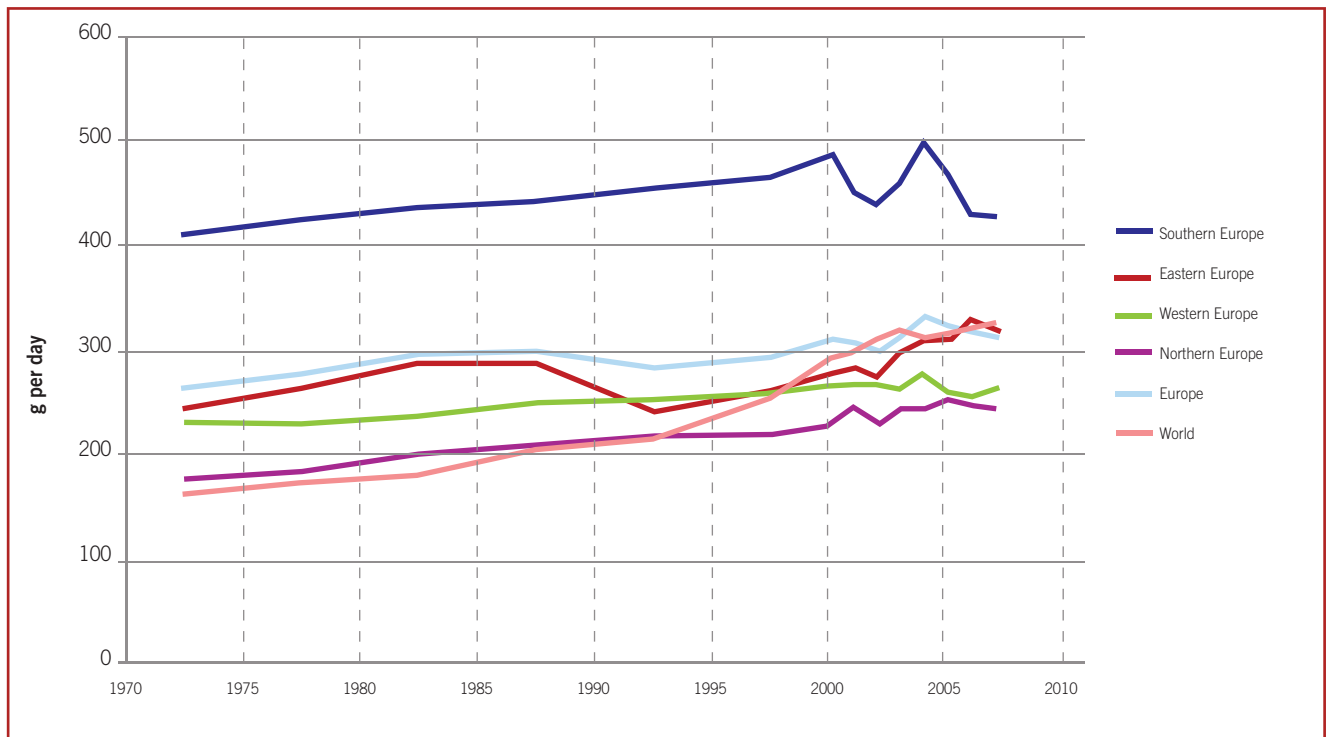


Figure 5.6b Vegetable consumption, 2007, Europe

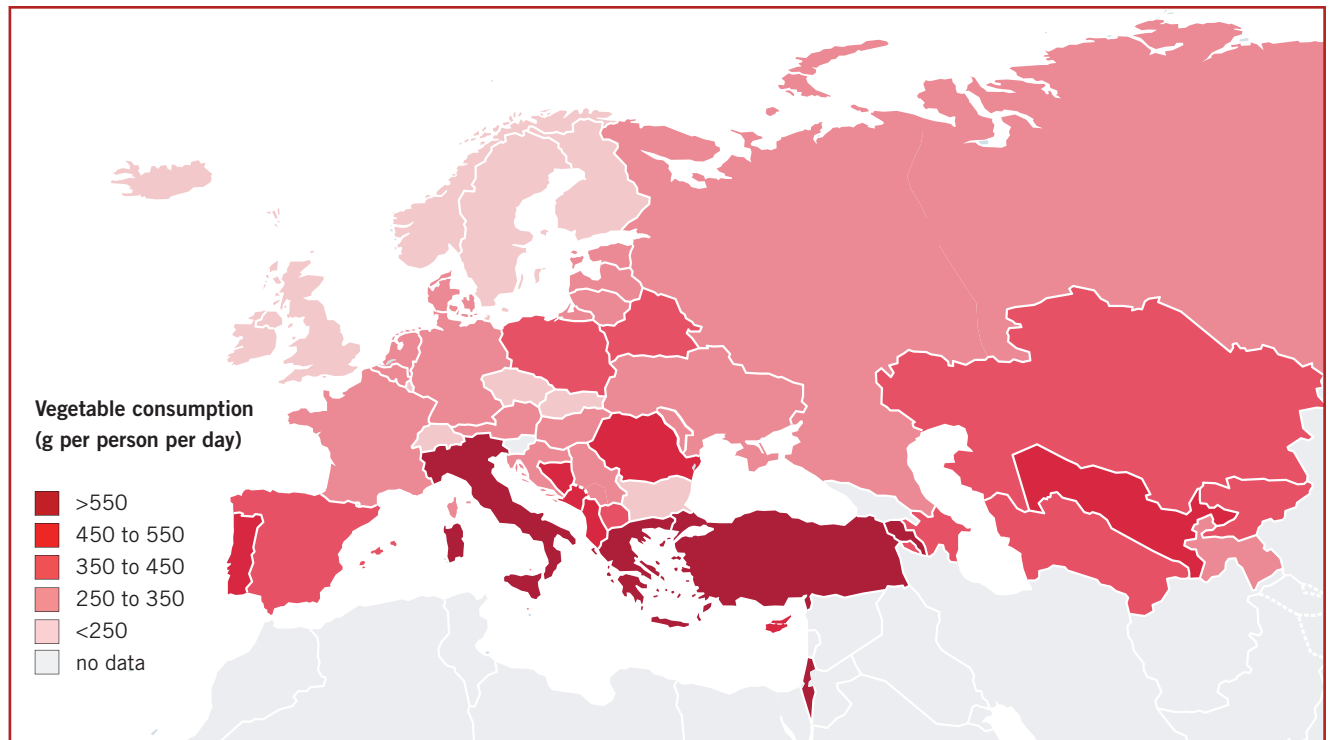


Table 5.7 Fruit consumption, 1970 to 2007, Europe

	Quantity (g per person per day)													
	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000	2001	2002	2003	2004	2005	2006	2007
Albania	114	124	123	109	86	136	205	238	249	257	260	279	296	312
Armenia						143	148	131	118	120	126	142	152	160
Austria	301	320	330	360	406	299	348	356	329	383	383	392	394	427
Azerbaijan					226	180	170	164	159	162	120	142	145	197
Belarus					111	81	71	93	178	112	142	145	178	197
Belgium						197	192	192	194	205	238	189	241	230
Bosnia and Herzegovina					68	88	82	85	82	164	304	257	252	252
Bulgaria	302	246	229	217	180	152	140	137	120	159	112	90	101	159
Croatia					184	235	219	227	222	246	189	200	260	277
Cyprus	518	485	613	375	336	360	359	315	304	268	312	323	315	326
Czech Republic					179	204	192	172	205	219	255	219	197	192
Denmark	176	180	140	197	194	221	282	255	468	397	389	392	361	307
Estonia					92	175	227	216	194	194	205	189	175	214
Finland	158	221	225	195	212	189	225	246	227	249	260	257	244	255
France	209	176	181	205	231	263	266	263	304	312	290	312	244	255
Georgia					153	165	140	129	101	148	110	151	115	115
Germany	289	284	278	308	310	281	315	282	282	268	246	271	233	241
Greece	337	290	388	406	452	407	449	465	454	419	515	471	444	449
Hungary	181	180	182	203	185	167	225	203	200	203	260	230	287	233
Iceland	141	162	168	208	236	228	271	293	312	290	293	312	372	402
Ireland	139	140	165	182	187	178	181	219	301	367	329	301	301	383
Israel	569	429	492	411	408	374	427	419	381	378	435	507	381	381
Italy	335	302	316	329	363	341	400	367	392	367	424	419	416	394
Kazakhstan					32	23	44	36	44	44	66	74	68	93
Kyrgyzstan					44	25	74	85	77	77	93	93	123	112
Latvia					105	122	162	148	164	142	142	156	151	167
Lithuania					96	146	189	186	167	159	162	181	219	249
Luxembourg							594	580	649	646	556	509	548	520
Malta	165	173	183	208	253	279	304	268	266	290	296	318	263	266
Montenegro														192
Netherlands	226	264	289	302	394	355	329	331	392	361	350	364	397	372
Norway	221	234	250	278	268	279	296	296	331	339	356	359	367	389
Poland	79	108	102	79	102	128	129	145	131	129	134	140	140	137
Portugal	198	151	135	202	274	318	323	318	318	296	339	318	323	320
Republic of Moldova					220	208	397	192	205	145	123	129	129	110
Romania	83	105	145	138	148	133	142	142	137	189	194	205	192	159
Russian Federation					100	91	99	107	123	129	145	164	178	194
Serbia														274
Slovakia					125	183	178	153	153	162	140	178	164	296
Slovenia					180	318	433	318	405	383	446	424	370	329
Spain	221	230	252	291	319	286	301	304	326	304	260	293	309	241
Sweden	229	235	216	234	246	244	268	277	296	312	309	298	301	320
Switzerland	373	379	362	346	325	302	249	238	238	216	208	200	200	216
Tajikistan					73	64	55	38	36	14	44	41	52	49
TFYR Macedonia					206	239	315	219	189	252	279	263	293	271
Turkey	342	326	344	321	318	296	301	277	279	301	271	312	293	301
Turkmenistan					79	76	101	112	123	134	131	123	126	115
Ukraine					96	88	82	77	79	99	99	110	107	93
United Kingdom	167	151	168	194	212	226	230	252	268	315	318	348	378	348
Uzbekistan					74	82	99	104	104	85	101	110	145	153
Europe	225	216	225	243	264	252	274	266	279	277	285	296	296	285
European Union	176	177	184	194	207	204	219	216	230	233	244	252	244	252

Source: Food and Agriculture Organization of the United Nations (FAO) [FAOstat.org http://faostat3.fao.org/home/index.html](http://faostat3.fao.org/home/index.html)

Notes: The actual food consumption may be lower than the quantity shown as food availability depending on the magnitude of wastage and losses of food in the household, e.g. during storage, in preparation and cooking, as plate-waste or quantities fed to domestic animals and pets, thrown or given away. Where 5-year ranges are given, values are averages of available data for the 5 years. Blank cells indicate data were not available.

Figure 5.7a Fruit consumption, 1970 to 2007, by region, Europe

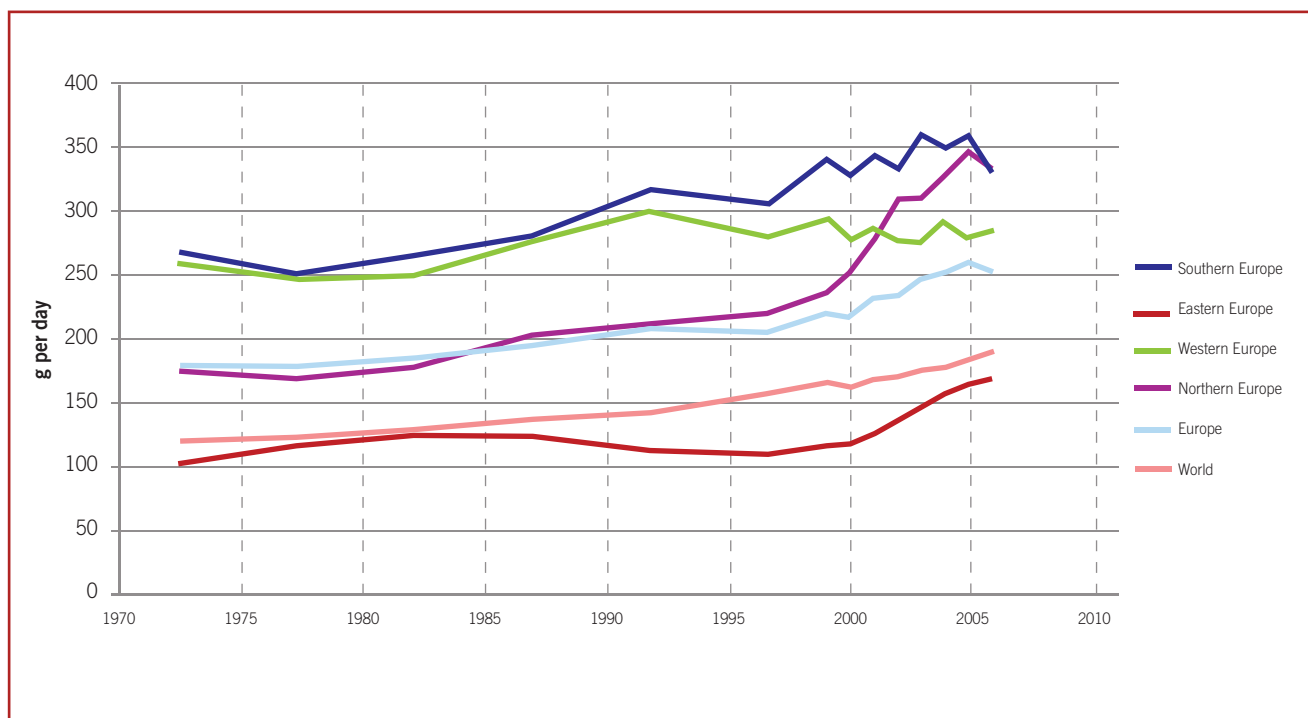


Figure 5.7b Fruit consumption, 2007, Europe

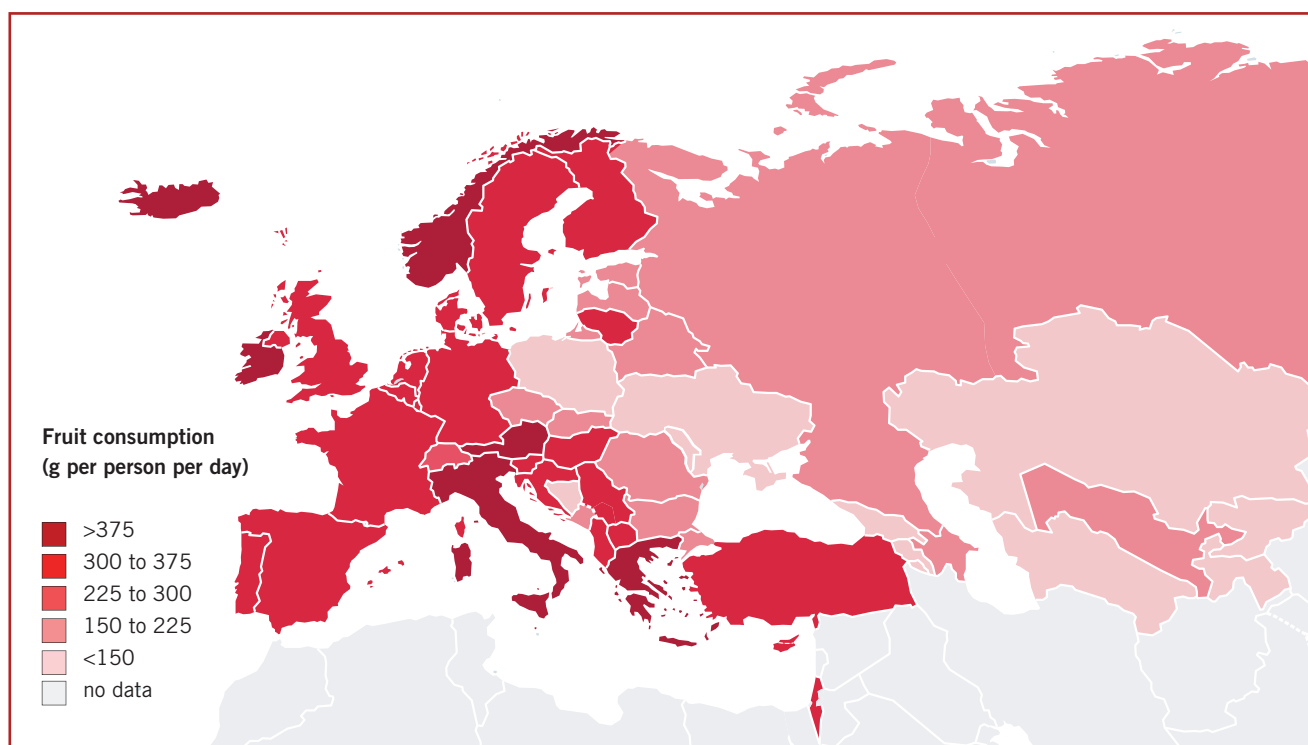
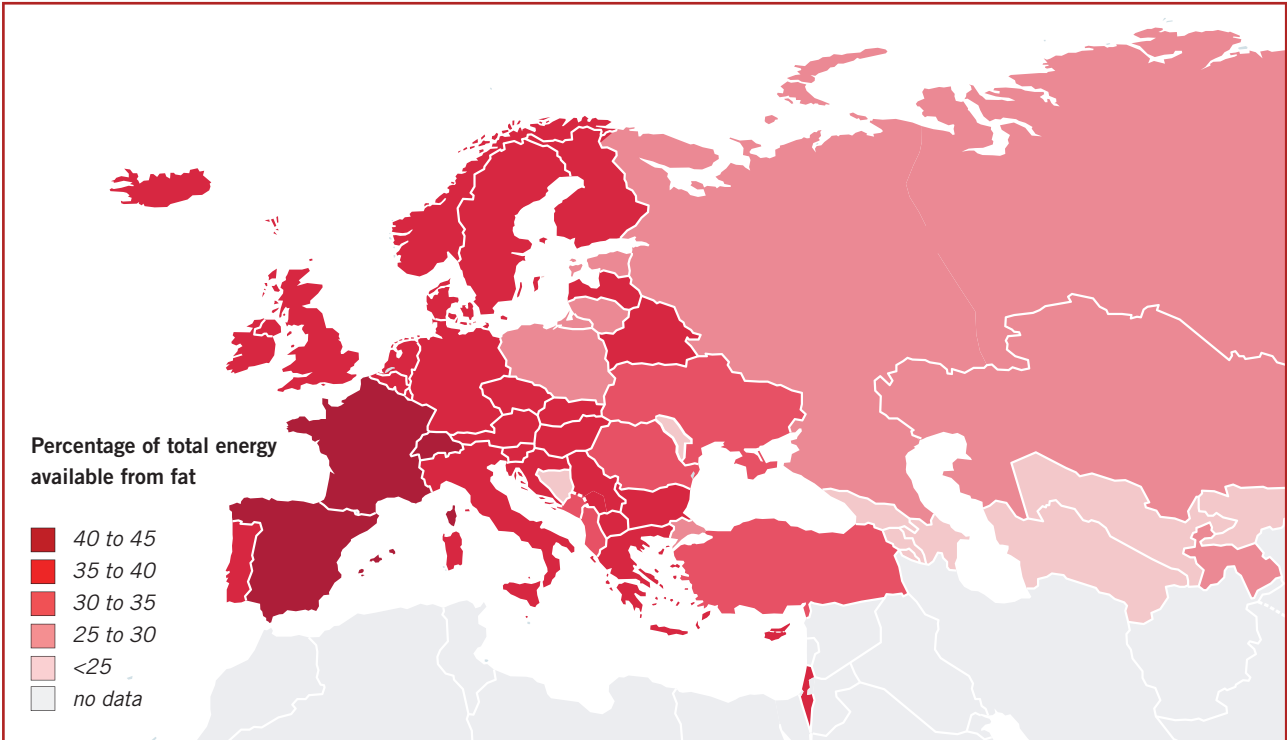


Figure 5.8 Percentage of energy available from fat, 2001, Europe



6. Physical activity

Participation in regular physical activity and/or aerobic exercise training is associated with a decrease in cardiovascular mortality¹. A lack of physical activity also increases the risk of other chronic diseases and may impact on quality of life. In 2010, the World Health Organization published its most recent recommendations on physical activity and health. For children and adolescents, the WHO recommended participation in at least 60 minutes of moderate to vigorous intensity physical activity daily. For adults, the recommendation is for at least 2.5 hours of moderate physical activity or 75 minutes of vigorous physical activity per week, with additional health benefits to participation in higher levels of intensity, longer duration of activity and specific muscle-strengthening activities². The 2012 European Guidelines on cardiovascular disease prevention in clinical practice also recommend at least 2.5 hours of at least moderate intensity activity, or 1 to 2.5 hours of vigorous intensity exercise¹.

Physical activity has an important role in many aspects of health, including most of the major non-communicable diseases which make the largest contribution to ill health worldwide³. Recent estimates have suggested that physical inactivity may be responsible for up to 9% of all premature mortality worldwide and causes 6% of the total burden of disease from coronary heart disease³.

Prevalence of physical activity and inactivity

The most recent multi-country data on physical activity among adults was the 2009 Eurobarometer survey on physical activity, which asked respondents to indicate how often they exercised or played sport and how often they participated in non-sport physical activities including active transport and incidental leisure time physical activity⁴.

Participation in exercise or sport was relatively low across the EU, with 39% of adults overall reporting that they never participate in these activities and 21% participating three times per week or more. More than half of respondents reported never exercising in five countries (Greece, Bulgaria, Portugal, Italy and Hungary). The highest rates of regular participation in exercise were in the Scandinavian countries and Ireland (Table 6.1 and Figure 6.1).

Participation in less formal physical activity was also quite low across the EU. When asked 'How often do you engage in a physical activity outside sport such as cycling or walking from a place to another, dancing, gardening...?', 14% of adults in the EU responded 'Never' (Table 6.2). Those in Southern Europe tended to be less likely to participate in informal physical activity and more than a quarter of respondents in Cyprus, Greece, Italy, Portugal and Romania reported never doing any physical activity. Informal physical activity was highest in the Netherlands, Sweden, Latvia, Denmark and Slovenia (Table 6.2 and Figure 6.2).

There were some differences between men and women in sport participation in the EU, with 43% of men, but just 37% of women reporting participating in sports at least once per week, and 49% of men and 57% of women reporting participation less than once per month. Participation in non-sport physical activity (walking, cycling, gardening etc.), however, showed no appreciable gender difference, with 27% of both men and women reporting regularly doing this sort of physical activity and 34% reporting rarely or never participating⁴.

Physical activity and sedentary behaviours among children

Among children and adolescents in Europe, levels of physical activity vary widely by age, gender and country (Table 6.4, Figures 6.4a to 6.4c). In general, physical activity appears to decrease between 11 and 15 years of age, and is generally higher among boys than girls.

In many countries, particularly among 13 and 15 year olds, more than double the percentage of boys compared to girls participate in more than one hour of moderate to vigorous physical activity (MVPA) per day (Figures 6.4b and 6.4c).

The proportion of children watching two or more hours of television per day, an indicator of sedentary lifestyles, shows much less difference by gender and age, however wide variation between countries is evident (Table 6.5 and Figures 6.5a to 6.5c). The lowest rates of excess television viewing were in Switzerland, where between 27% (11 year old children) and 42% (15 year olds) exceeded 2 hours of television per day. In a large number of countries, however, more than two-thirds of all 11, 13 and 15 year olds reported that they watch more than 2 hours of television per day on weekdays.

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- 1 Perk J, De Backer G, Gohlke H, Graham I, Reiner Z, Verschuren M, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012): The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. *Eur Heart J* 2012;33(13):1635-701.
 - 2 World Health Organization. Global recommendations on physical activity for health. <http://www.who.int/dietphysicalactivity/publications/9789241599979/en/index.html>. Geneva: WHO, 2010.
 - 3 Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet* 2012;380(9838):219-29.
 - 4 European Commission. Special Eurobarometer 332 'Physical Activity' / Wave 72.3 – TNS Opinion & Social. http://ec.europa.eu/public_opinion/index_en.htm. Brussels, Belgium, 2010.

Table 6.1 Frequency of exercising or playing sport, adults, 2009, EU

	5 times per week or more (%)	3 to 4 times per week (%)	1 to 2 times per week (%)	1 to 3 times per month (%)	Less often (%)	Never (%)
Austria	5	11	22	12	21	29
Belgium	15	10	24	7	16	28
Bulgaria	3	2	8	5	23	58
Cyprus	16	13	12	2	10	46
Czech Republic	5	4	19	10	25	37
Denmark	15	18	31	7	11	18
Estonia	7	9	18	8	17	41
Finland	17	27	27	9	13	7
France	13	12	23	8	10	34
Germany	9	15	25	6	14	31
Greece	3	7	8	3	12	67
Hungary	5	7	11	6	18	53
Ireland	23	18	17	4	11	26
Italy	3	9	17	4	12	55
Latvia	8	6	13	8	21	44
Lithuania	14	8	14	4	16	44
Luxembourg	12	16	23	5	12	32
Malta	17	15	16	4	10	38
Netherlands	5	16	35	8	8	28
Poland	6	7	13	6	18	48
Portugal	9	10	14	4	7	55
Romania	8	6	7	8	20	49
Slovakia	5	8	17	10	25	35
Slovenia	13	15	24	7	18	23
Spain	12	15	12	4	15	42
Sweden	22	22	28	8	13	6
United Kingdom	14	14	17	7	15	33
EU	9	12	19	6	15	39

Source: European Commission, Eurobarometer 72.3 Special Eurobarometer 334 http://ec.europa.eu/public_opinion/archives/ebs/ebs_334_en.pdf

Notes: Some percentages do not add to 100% due to a small proportion of 'don't know' responses in some countries.

Question: 'How often do you exercise or play sport?'

Table 6.2 Frequency of participating in informal physical activity, adults, 2009, EU

	5 times per week or more (%)	3 to 4 times per week (%)	1 to 2 times per week (%)	1 to 3 times per month (%)	Less often (%)	Never (%)
Austria	15	21	33	14	12	5
Belgium	21	14	22	10	14	19
Bulgaria	25	17	23	8	19	3
Cyprus	20	14	17	4	13	32
Czech Republic	17	13	21	13	23	13
Denmark	43	18	24	7	4	4
Estonia	40	16	21	7	8	8
Finland	29	23	26	9	9	4
France	33	17	25	9	6	10
Germany	28	24	26	8	8	6
Greece	15	14	19	10	15	27
Hungary	41	15	16	6	11	11
Ireland	33	22	19	5	8	12
Italy	7	9	21	14	16	33
Latvia	44	17	15	7	7	9
Lithuania	39	15	13	6	13	14
Luxembourg	37	17	22	7	9	8
Malta	32	13	17	4	9	24
Netherlands	42	20	22	7	4	5
Poland	26	15	19	9	10	17
Portugal	17	15	16	5	10	36
Romania	19	11	13	8	18	27
Slovakia	27	18	22	9	16	8
Slovenia	39	21	20	5	10	5
Spain	33	22	16	7	12	10
Sweden	40	21	23	7	7	2
United Kingdom	37	15	21	7	9	11
EU	27	17	21	9	11	14

Source: European Commission, Eurobarometer 72.3 Special Eurobarometer 334 http://ec.europa.eu/public_opinion/archives/ebs/ebs_334_en.pdf

Notes: Some percentages do not add to 100% due to a small proportion of 'don't know' responses in some countries.

Question: 'How often do you engage in a physical activity outside sport such as cycling or walking from a place to another, dancing, gardening...?'

Figure 6.1 Prevalence of adults who do no moderate intensity physical activity in a typical week, 2009, EU

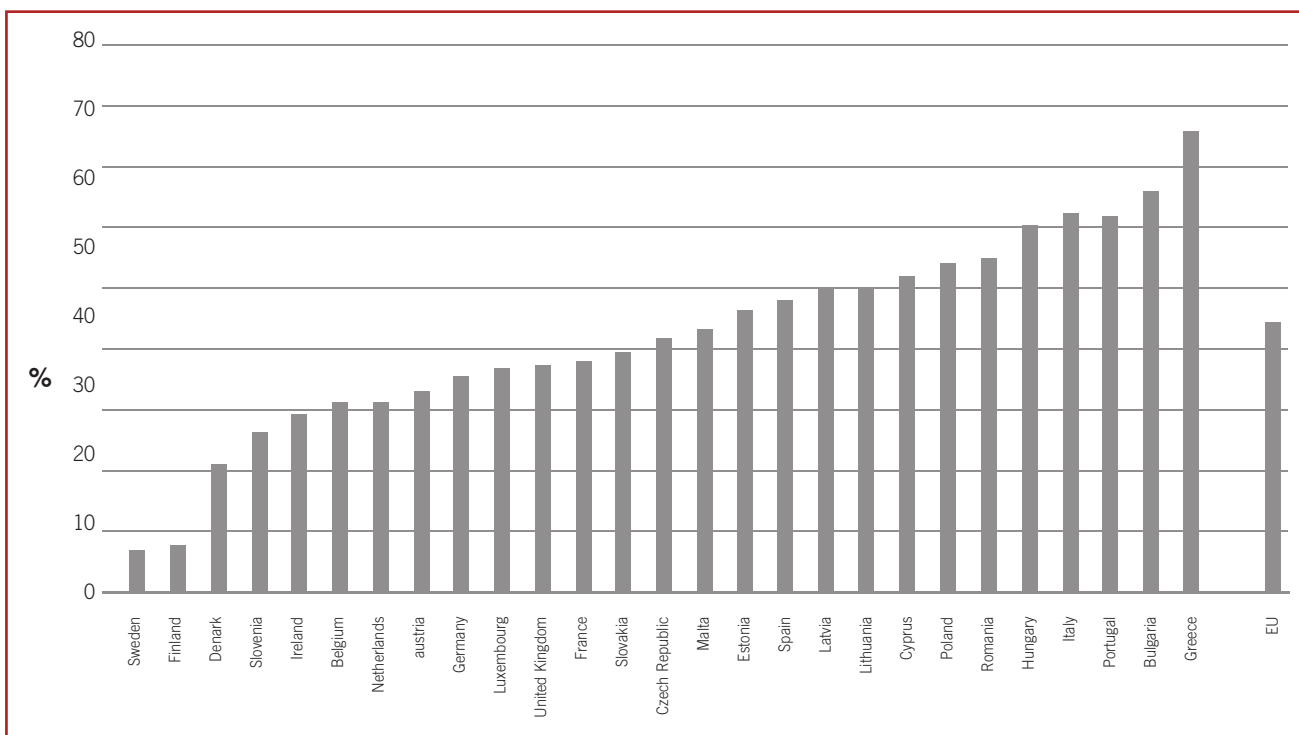


Figure 6.2 Prevalence of adults who participate in physical activity (excluding sport) at least 5 times per week, 2009, EU

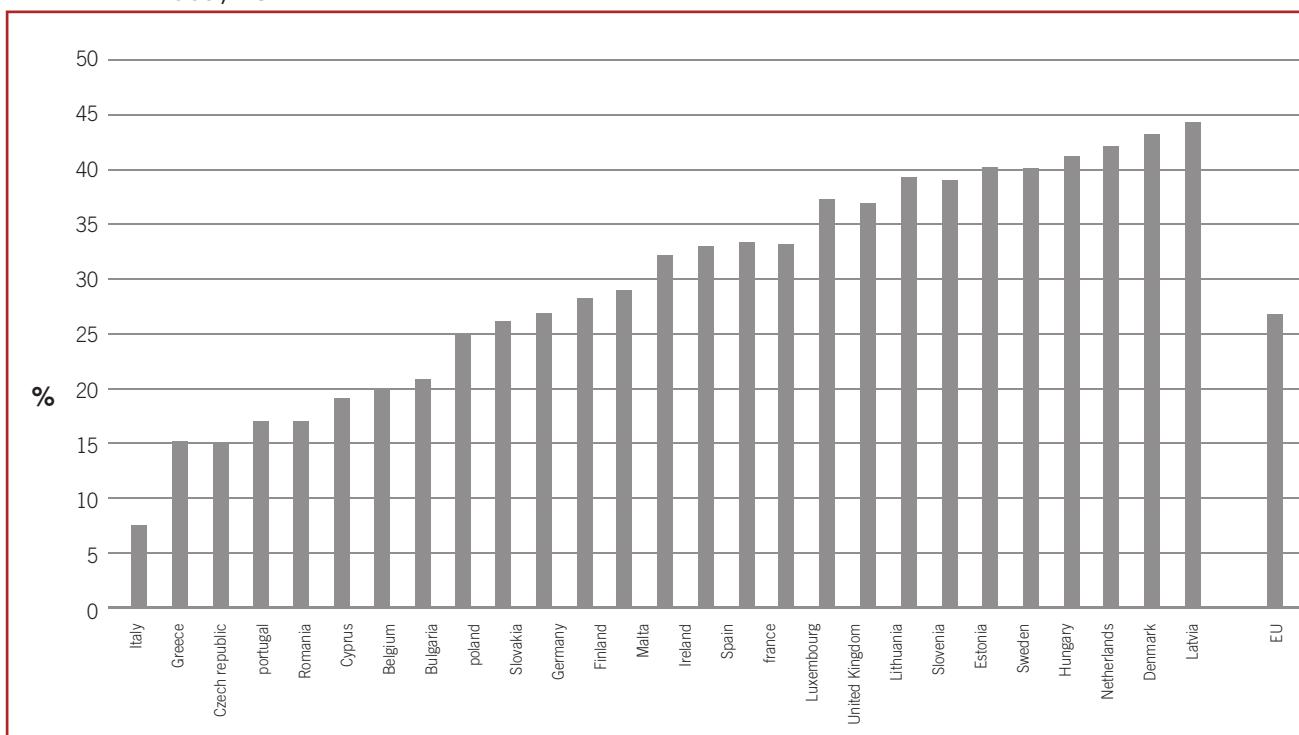


Table 6.3 Prevalence of insufficiently active adults, aged 15 years and older, by sex, 2008, Europe

	Male (%)	Female (%)	Total (%)
Austria	30	39	35
Belgium	40	45	43
Bosnia and Herzegovina	30	37	34
Bulgaria	25	29	27
Croatia	26	21	24
Cyprus	48	63	55
Czech Republic	28	22	25
Denmark	35	35	35
Estonia	16	19	17
Finland	41	35	38
France	28	37	33
Georgia	21	24	22
Germany	28	29	28
Greece	17	15	16
Hungary	26	26	26
Ireland	48	59	53
Italy	50	60	55
Kazakhstan	32	31	32
Latvia	28	36	32
Lithuania	20	25	23
Luxembourg	50	46	48
Malta	71	73	72
Netherlands	21	15	18
Norway	43	45	44
Poland	24	32	28
Portugal	48	54	51
Romania	31	46	39
Russian Federation	23	19	21
Serbia	63	73	68
Slovakia	23	21	22
Slovenia	27	34	30
Spain	47	53	50
Sweden	44	44	44
Turkey	50	63	56
Ukraine	20	16	18
United Kingdom	58	69	63

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>

Notes: Percent of defined population attaining less than 5 times 30 minutes of moderate activity per week, or less than 3 times 20 minutes of vigorous activity per week, or equivalent.

Based on self-reported physical activity captured using the GPAQ (Global Physical Activity Questionnaire), the IPAQ (International Physical Activity Questionnaire) or a similar questionnaire (age standardized estimates).

Table 6.4 Prevalence of children who participate in at least one hour of moderate to vigorous physical activity per day, by sex, 2005/06 and 2009/10, Europe

Boys	2005/06			2009/10		
	11 year olds (%)	13 year olds (%)	15 year olds (%)	11 year olds (%)	13 year olds (%)	15 year olds (%)
Armenia				34	27	29
Austria	29	27	13	40	34	20
Belgium (Flemish)	20	21	17	25	18	17
Belgium (French)	31	27	24	30	20	15
Bulgaria	39	32	24			
Croatia	36	31	20	31	31	22
Czech Republic	25	28	27	28	30	25
Denmark	31	23	20	16	12	14
England	27	23	18	33	27	25
Estonia	24	22	18	19	17	13
Finland	48	24	15	38	32	17
France	24	20	14	21	17	14
Germany	25	19	16	25	21	13
Greece	25	21	16	21	21	18
Hungary	28	29	19	30	25	21
Iceland	29	24	16	25	20	15
Ireland	51	39	27	43	36	28
Israel	30	24	13			
Italy	23	23	16	10	10	12
Latvia	30	27	26	26	25	22
Lithuania	27	22	19	23	18	18
Luxembourg	18	19	19	32	32	24
Malta	27	20	19			
Netherlands	30	24	18	24	24	19
Norway	27	15	13	27	18	12
Poland	24	21	21	31	22	23
Portugal	30	21	15	23	19	14
Romania	29	24	16	32	28	16
Russian Federation	20	18	12	17	18	13
Scotland	40	28	21	24	19	13
Slovakia	51	51	46	30	30	27
Slovenia	25	22	19	31	25	20
Spain	32	21	19	41	27	25
Sweden	23	21	11	19	14	13
Switzerland	19	16	13	20	16	12
TFYR Macedonia	29	30	21	32	28	22
Turkey	29	22	16	27	23	18
Ukraine	33	32	21	34	29	24
Wales	35	27	21	29	23	21

Table 6.4 continued...

Girls	2005/06			2009/10		
	11 year olds (%)	13 year olds (%)	15 year olds (%)	11 year olds (%)	13 year olds (%)	15 year olds (%)
Armenia				21	17	14
Austria	23	14	10	30	17	9
Belgium (Flemish)	15	10	11	15	11	10
Belgium (French)	23	20	21	18	12	9
Bulgaria	26	19	16			
Croatia	26	15	10	19	15	8
Czech Republic	19	17	16	23	19	14
Denmark	26	18	16	10	10	8
England	18	14	9	20	15	12
Estonia	21	13	9	16	11	9
Finland	37	15	9	25	17	10
France	12	5	5	9	6	5
Germany	20	13	10	20	14	9
Greece	16	12	7	12	8	5
Hungary	19	13	11	22	11	9
Iceland	23	14	9	17	11	9
Ireland	38	23	13	31	20	12
Israel	15	12	6			
Italy	13	9	7	7	5	5
Latvia	23	17	16	18	18	13
Lithuania	20	13	13	17	12	11
Luxembourg	13	11	11	18	16	13
Malta	18	14	13			
Netherlands	20	20	15	19	15	13
Norway	17	14	7	17	6	9
Poland	19	12	10	23	14	10
Portugal	12	8	5	14	7	6
Romania	16	11	6	20	13	7
Russian Federation	12	10	7	11	9	7
Scotland	25	15	9	16	10	8
Slovakia	43	35	29	22	15	12
Slovenia	21	10	9	20	15	10
Spain	24	14	12	26	15	8
Sweden	20	14	10	17	11	9
Switzerland	11	10	10	11	8	6
TFYR Macedonia	26	18	11	28	15	13
Turkey	21	17	12	19	12	9
Ukraine	22	16	11	25	17	9
Wales	21	12	9	19	13	9

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

Figure 6.4a Prevalence of 11 year olds participating in 1 hour or more of MVPA per day, by sex, 2009

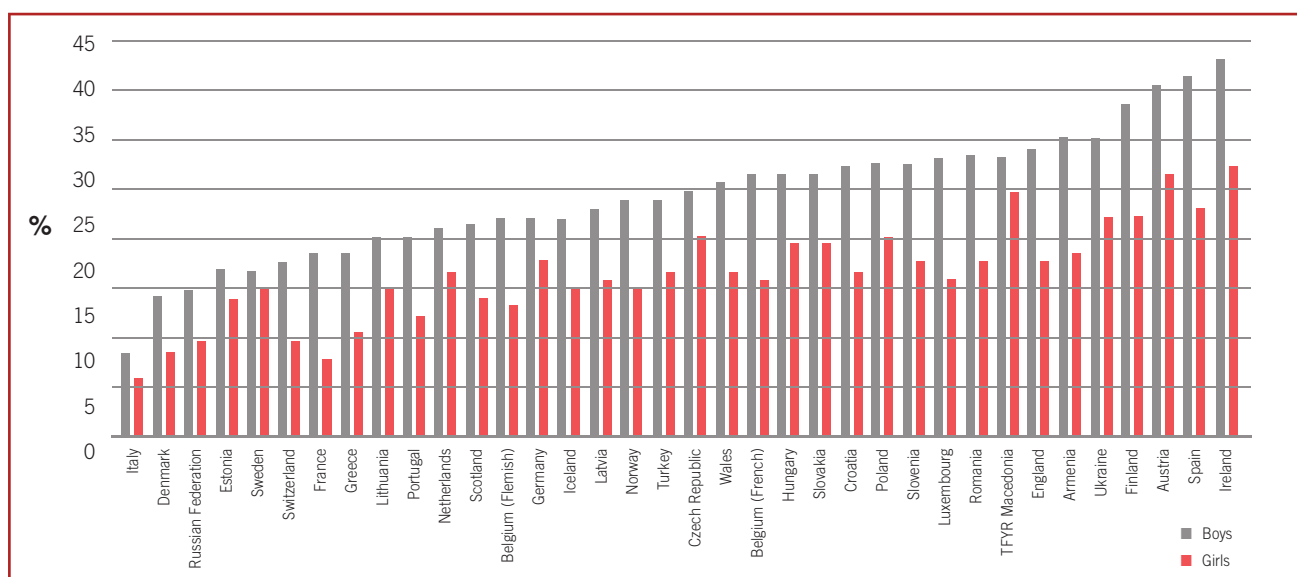


Figure 6.4b Prevalence of 13 year olds participating in 1 hour or more of MVPA per day, by sex, 2009



Figure 6.4c Prevalence of 15 year olds participating in 1 hour or more of MVPA per day, by sex, 2009

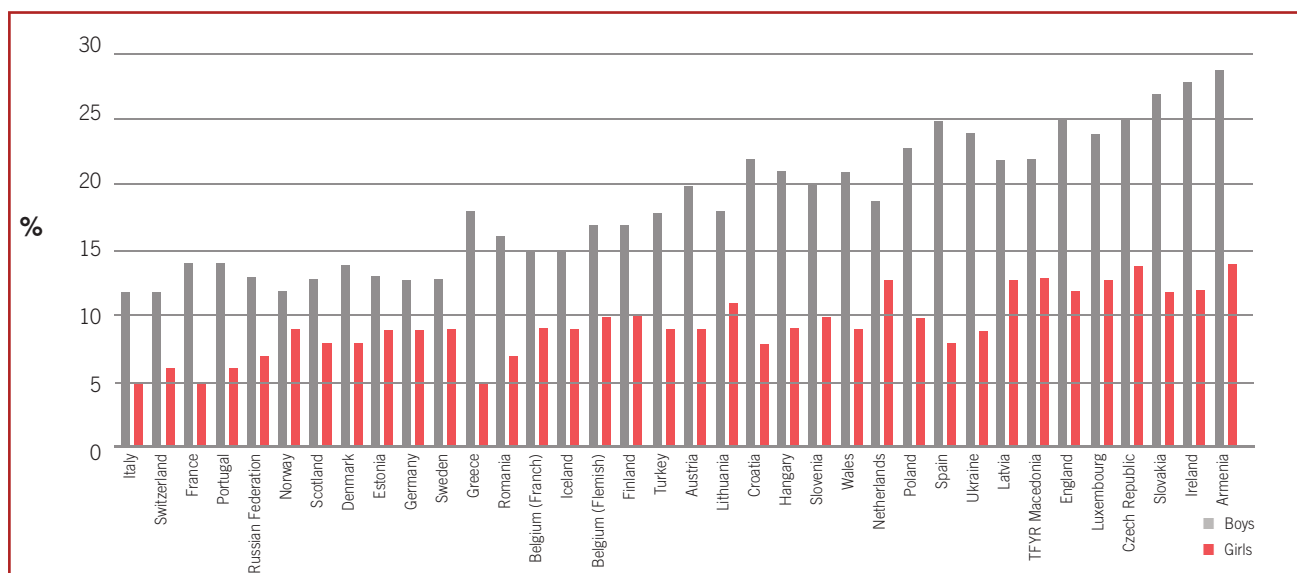


Table 6.5 Prevalence of children who watch television for two or more hours per day on weekdays, by sex, 2005/06 and 2009/10, Europe

Boys	2005/06			2009/10		
	11 year olds (%)	13 year olds (%)	15 year olds (%)	11 year olds (%)	13 year olds (%)	15 year olds (%)
Armenia				66	74	79
Austria	55	65	70	46	61	63
Belgium (Flemish)	64	69	69	58	61	65
Belgium (French)	49	60	60	43	55	58
Bulgaria	80	82	78			
Croatia	74	80	76	69	76	71
Czech Republic	70	76	71	61	72	63
Denmark	64	73	69	64	65	69
England	58	66	63	64	74	71
Estonia	74	80	71	69	74	66
Finland	55	62	62	61	60	55
France	53	63	61	49	59	54
Germany	50	66	67	44	65	68
Greece	68	77	75	69	73	71
Hungary	57	68	64	50	64	64
Iceland	62	72	62	49	60	52
Ireland	63	66	65	55	56	60
Israel	72	75	78			
Italy	56	66	69	48	59	62
Latvia	77	82	75	70	74	68
Lithuania	75	82	77	69	72	72
Luxembourg	45	55	59	42	56	63
Netherlands	65	76	79	69	71	71
Norway	50	59	66	47	59	64
Poland	66	74	69	64	68	67
Portugal	68	76	77	61	72	67
Romania	79	81	82	65	77	69
Russian Federation	71	74	71	67	67	63
Scotland	69	73	74	61	66	69
Slovakia	76	84	85	71	75	73
Slovenia	65	70	63	63	67	54
Spain	53	64	67	48	60	65
Sweden	55	67	61	60	66	63
Switzerland	31	39	51	29	35	45
TFYR Macedonia	55	67	66	52	63	61
Turkey	63	63	70	60	67	68
Ukraine	77	83	77	69	76	69
Wales	62	76	75	62	71	73

Table 6.5 continued...

Girls	2005/06			2009/10		
	11 year olds (%)	13 year olds (%)	15 year olds (%)	11 year olds (%)	13 year olds (%)	15 year olds (%)
Armenia				61	75	82
Austria	42	65	62	37	55	60
Belgium (Flemish)	62	70	67	55	64	65
Belgium (French)	42	54	51	40	49	54
Bulgaria	81	86	84			
Croatia	70	83	70	69	77	67
Czech Republic	65	71	67	56	69	59
Denmark	57	70	69	58	68	67
England	51	57	61	60	68	64
Estonia	75	79	72	68	75	63
Finland	55	58	57	58	59	50
France	50	58	57	42	55	48
Germany	42	64	68	43	59	64
Greece	70	82	77	64	74	70
Hungary	50	67	59	48	65	57
Iceland	50	64	61	41	52	46
Ireland	56	63	61	48	52	56
Israel	78	85	74			
Italy	52	66	65	42	60	61
Latvia	73	78	70	65	73	68
Lithuania	79	83	78	69	75	70
Luxembourg	37	50	53	40	52	58
Netherlands	63	70	76	64	69	69
Norway	48	69	72	42	61	66
Poland	63	73	64	61	67	65
Portugal	67	82	78	60	75	64
Romania	73	80	74	64	75	68
Russian Federation	73	76	73	69	71	65
Scotland	64	69	69	58	67	68
Slovakia	74	82	83	66	78	72
Slovenia	63	68	48	55	64	46
Spain	45	62	69	45	54	63
Sweden	48	66	59	56	67	60
Switzerland	29	38	42	24	34	38
TFYR Macedonia	51	70	66	47	70	65
Turkey	59	62	68	53	65	67
Ukraine	77	83	79	71	76	69
Wales	66	72	72	56	69	67

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

Figure 6.5a Prevalence of 11 year olds watching 2 or more hours of television per day, by sex, 2009, Europe

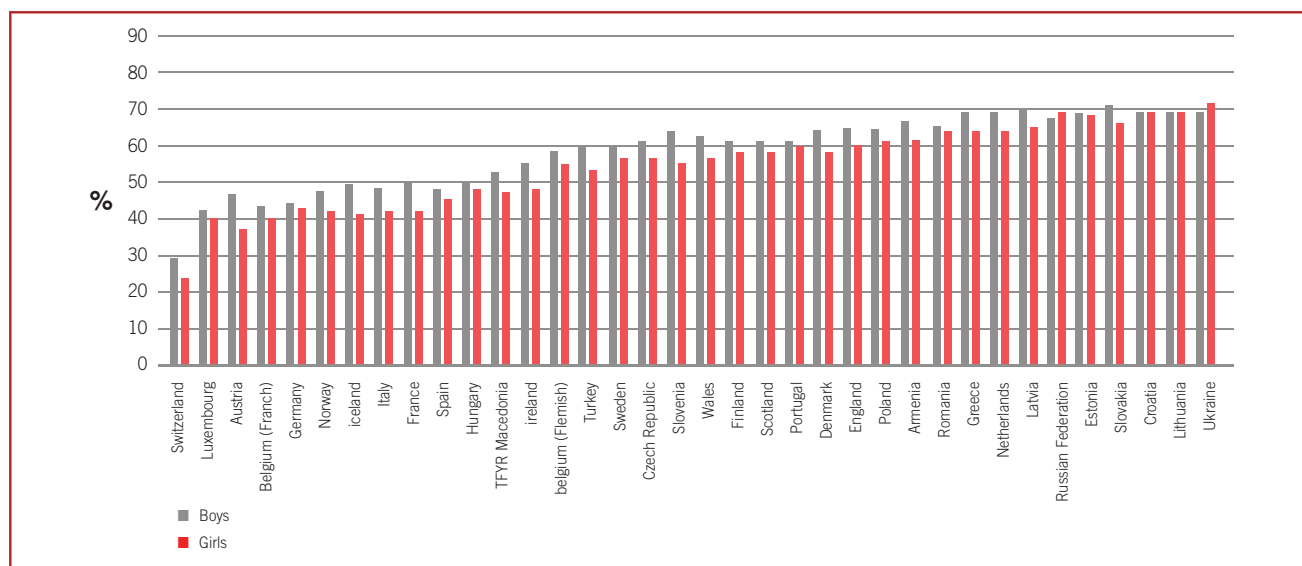


Figure 6.5b Prevalence of 13 year olds watching 2 or more hours of television per day, by sex, 2009, Europe

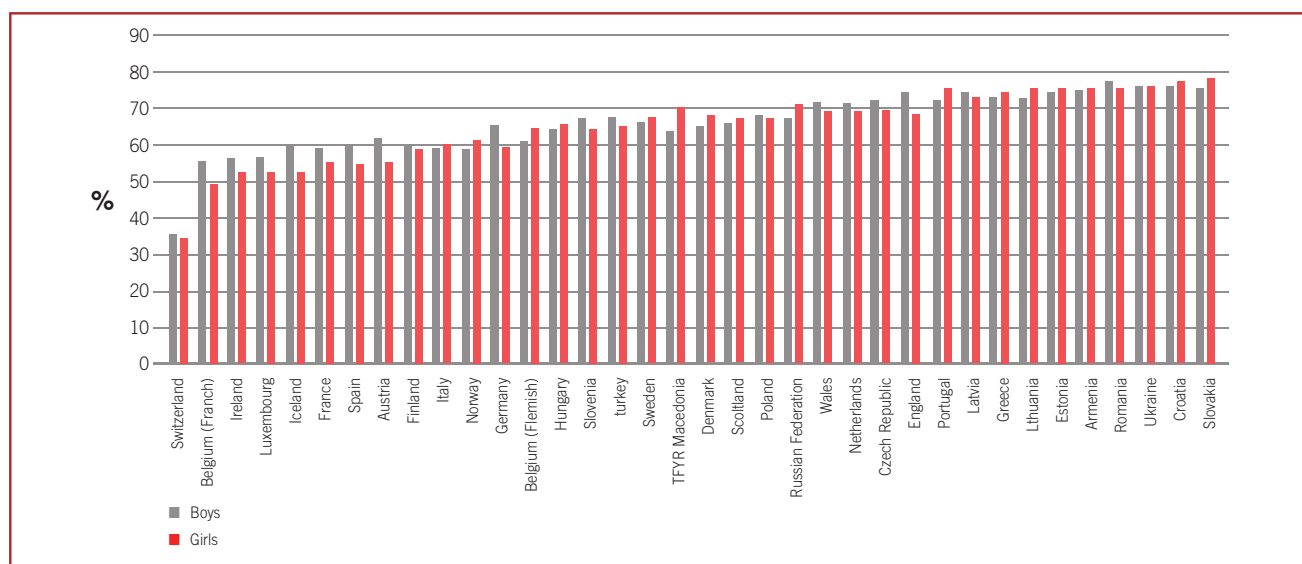
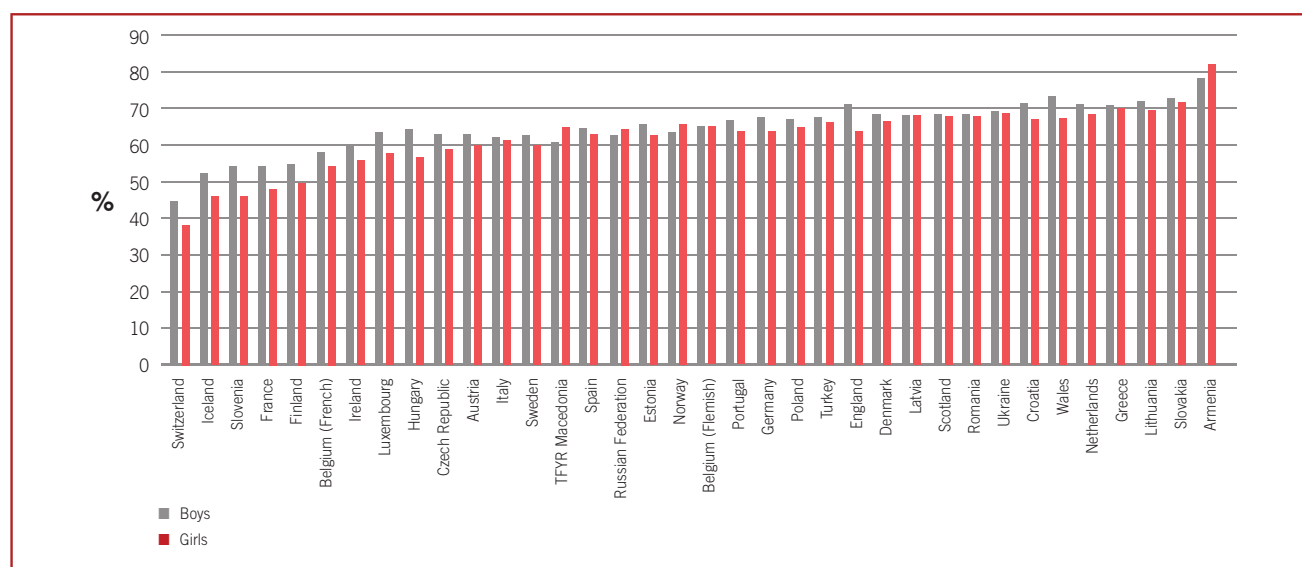


Figure 6.5c Prevalence of 15 year olds watching 2 or more hours of television per day, by sex, 2009, Europe



7. Alcohol

Mortality and morbidity attributable to alcohol consumption

While moderate alcohol consumption (one or two drinks a day) reduces the risk of CVD, at high levels of intake – particularly when consumed in episodes of very heavy consumption – the risk of CVD is increased. Alcohol consumption also increases the risk of liver cirrhosis, injuries and some forms of cancer. On balance, the positive effects of alcohol on the health of populations beyond very low levels of consumption are generally outweighed by its negative effects¹.

Levels of alcohol consumption and recent trends

Levels of recorded alcohol consumption vary considerably across Europe². Data from 2007, the most recent comparable year, show that the amount of recorded alcohol consumption ranges from less than half a litre per adult per year in Tajikistan and San Marino, to over 15 litres per adult in the Czech Republic, Estonia, Luxembourg and the Republic of Moldova. There is a wide regional spread of countries with an above average level of alcohol consumption, including Northern (Estonia), Western (Ireland and Germany), Southern (France and Spain), Central (Czech Republic and Hungary) and Eastern (Republic of Moldova) countries (Table 7.1, Figure 7.1a).

There has been a steady decrease in levels of alcohol consumption in several Southern and Western European countries, particularly France, Italy and Luxembourg, which all recorded decreases in consumption of more than 1.5 litres of pure alcohol per adult between 2000 and 2007. In a number of countries in Eastern Europe, however, there were very large increases in consumption over the same period of time. Estonia, notably, recorded a doubling of per capita consumption between 2000 and 2007, although more recent data show that the levels have begun to decline since 2007 (Table 7.1 and Figure 7.1b).

1 Nichols M, Scarborough P, Allender S, Rayner M. What is the optimal level of population alcohol consumption for chronic disease prevention in England? Modelling the impact of changes in average consumption levels. *BMJ Open* 2012;2(3).

2 Levels of actual alcohol consumption may vary less than levels of recorded consumption because there is probably much unrecorded consumption in countries with low recorded rates. For example, estimates from WHO suggest that unrecorded alcohol consumption is twice that of recorded consumption in Latvia and is four times that of recorded consumption in TFYR Macedonia. For more details see: Rehn N, with Room R and Edwards G (2001) Alcohol in the European Region – consumption, harm and policies. www.who.dk/document/E76240.pdf

Table 7.1 Alcohol consumption, adults aged 15 years and over, 1970 to 2010, Europe

	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Albania	1.8	1.4	1.5	1.6	2.0	2.9	4.0	4.5	3.9	4.3	4.4	4.9	5.0	5.2			
Andorra									17.0	15.9	13.6	12.8	11.8				
Armenia	13.9	14.5	13.8	12.1	14.9	14.2	13.7	12.8	12.9	12.6	12.5	12.7	12.8	12.9	12.4	12.2	12.2
Austria					2.5	1.2	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.5			
Azerbaijan					7.7	8.9	10.8	10.7	12.1	11.1	11.2	11.0	12.5	13.8			
Belarus	11.7	13.0	13.5	12.9	12.1	11.1	10.3	10.3	9.9	9.9	9.8	9.7	9.7	11.2	10.8		
Bosnia and Herzegovina					11.9	8.5	9.0	8.6	8.5	9.8	9.5	10.3	11.5	11.4	13.5		
Bulgaria	8.7	10.5	11.2	11.2	11.7	9.7	9.7	10.7	10.2	10.6	10.6	10.1	10.0	10.2	10.5	10.0	10.0
Croatia					15.9	10.9	12.7	13.1	13.2	12.4	11.8	10.5	10.7	11.4	10.5	10.1	10.1
Cyprus	4.8	4.7	6.2	7.9	9.5	9.6	8.2	8.8	8.8	9.9	10.1	9.3	8.9	9.3	8.7	8.4	8.4
Czech Republic	10.7	11.8	12.5	12.3	11.2	12.5	15.3	15.4	15.5	15.6	15.2	15.4	15.3	15.5	15.3	15.0	15.0
Denmark	8.7	11.7	11.7	12.1	11.6	12.1	12.7	12.5	11.9	12.3	11.7	11.9	11.7	11.3	11.1	10.7	10.7
Estonia					9.9	8.3	7.9	9.2	10.4	11.6	13.2	13.8	15.0	16.0	14.3	13.2	12.5
Finland	5.8	8.0	7.9	8.0	9.5	8.3	8.6	9.0	9.2	9.3	9.9	10.0	10.1	10.5	10.3	10.0	10.0
France	21.6	21.2	19.2	16.8	15.8	14.2	13.6	13.9	13.8	13.5	13.2	13.2	11.8	11.6	12.3	12.3	12.3
Georgia					4.8	3.4	4.1	3.6	3.9	4.0	4.1	5.0	5.7	6.9	6.1	6.0	6.0
Germany	13.3	14.4	14.0	12.9	12.6	13.4	12.9	12.5	12.3	11.9	11.8	12.2	12.4	12.1	12.0	11.7	11.7
Greece	7.1	7.0	13.2	11.3	10.7	10.5	8.5	8.6	8.1	8.7	8.9	9.2	8.8	9.0	9.3	8.2	8.2
Greenland	13.9	19.2	12.0	18.5			10.3	9.7	10.7	11.6	11.7	11.7	11.3	11.7	11.3	11.7	11.3
Hungary	11.5	12.7	16.9	16.7	16.2	12.6	12.3	13.2	13.3	13.3	13.3	13.2	13.4	12.8	11.8	11.5	11.5
Iceland	3.8	4.0	4.3	4.4	5.2	4.8	6.1	6.3	6.5	6.5	6.7	7.1	7.2	7.5			
Ireland	8.6	11.2	10.5	9.7	10.4	11.9	13.7	13.8	14.2	13.4	13.5	13.4	13.4	13.4	12.4	12.4	11.9
Israel	4.3	4.9	2.8	2.6	1.8	1.5	2.7	2.6	2.5	2.3	2.2	2.4	2.3	2.4			
Italy	19.7	18.3	16.7	13.2	11.0	9.6	9.3	9.1	8.6	8.6	8.3	8.0	7.8	7.8	7.4	6.9	6.9
Kazakhstan					11.9	4.9	5.6	5.4	5.6	5.9	6.1	6.4	6.6	7.0			
Kyrgyzstan					7.1	4.5	1.7	4.1	4.1	4.6	4.5	4.6	4.7	5.5			
Latvia	13.0	10.9	7.3	9.9	8.8	8.3	8.8	8.3	9.0	10.0	9.5	11.0	11.7	12.3	13.2	13.2	13.2
Lithuania					11.6	7.1	6.1	13.2	11.0	11.3	12.1	13.2	13.8	13.1	12.2	12.2	12.6
Luxembourg	12.9	13.5	13.7	14.7	14.7	14.3	17.9	16.7	17.0	17.4	17.1	17.7	16.3	16.2	16.5	15.3	15.3
Malta					6.9	6.9	5.8	5.8	5.9	6.3	6.3	6.3	6.7	7.6	7.6	7.7	7.7
Montenegro												6.8	7.3	7.4	8.4	8.4	8.3
Netherlands	7.8	11.9	11.3	10.6	9.9	9.8	10.1	10.0	9.7	9.6	9.6	9.5	9.4	9.3	9.3	9.2	9.2
Norway	4.7	5.5	5.9	5.2	5.0	4.8	5.7	5.5	5.9	6.0	6.2	6.4	6.5	6.6	6.8	6.7	6.7
Poland	7.6	9.6	11.5	9.4	8.3	8.1	8.4	7.7	8.0	9.1	9.2	9.0	9.7	10.3	10.7	10.1	10.1
Portugal	14.5	18.5	14.9	17.0	16.1	14.7	12.3	12.2	12.0	12.9	12.3	12.2	11.9	11.4			
Republic of Moldova					12.0	16.6	14.2	13.9	14.3	11.2	11.3	13.7	16.7	21.1	20.6		
Romania	8.5	10.2	10.9	10.1	10.9	11.3	10.2	9.8	10.3	10.9	11.7	9.9	12.7	13.5	13.9	12.7	12.7
Russian Federation	8.9	7.8	7.9	7.4	7.1	11.2	9.8	10.0	10.3	11.3	10.9	11.0	11.1	11.5	11.5	11.5	11.5
San Marino								0.1	0.2	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0
Serbia							7.4	7.5	7.0	7.3	7.4	7.3	7.9	7.9	7.8	7.3	7.3
Slovakia	11.5	13.4	13.7	12.7	12.4	10.3	11.1	10.7	10.8	9.9	10.0	10.8	10.3	11.5	11.8	11.4	11.4
Slovenia					15.1	13.8	13.4	9.9	10.2	11.1	11.5	12.3	13.5	12.8	12.7	11.9	11.9
Spain	16.1	19.5	18.5	15.0	13.6	11.4	11.1	11.1	9.9	10.2	10.4	10.0	10.0	12.2	12.0	11.4	11.4
Sweden	7.2	7.6	6.7	6.1	6.4	6.2	6.0	6.0	6.9	7.0	6.5	6.6	6.8	6.9	6.9	7.4	7.4
Switzerland	14.0	13.5	13.4	13.5	13.0	11.5	11.3	11.1	10.9	10.9	10.6	10.2	10.3	10.5	10.3	10.2	10.2
Tajikistan							1.8	0.4	0.9	0.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3
TFYR Macedonia							6.6	5.0	4.5	3.8	5.4	5.6	4.3	4.3	4.2	3.7	3.7
Turkey	0.9	1.3	1.2	1.0	0.8	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3
Turkmenistan							2.0	2.9	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Ukraine	7.8	8.0	6.6	5.7	5.7	3.7	7.1	7.4	8.4	8.0	7.8	8.5	9.1	9.8			
United Kingdom	6.7	8.9	9.6	8.9	10.0	9.7	10.8	10.6	11.1	11.5	11.7	11.8	11.5	11.4	11.5	10.7	10.7
Uzbekistan							1.9	1.6	1.5	1.5	1.6	1.8	1.8	1.8	1.8	1.8	1.8
European Union	14.0	12.4	11.8	11.2	11.0	10.9	11.0	10.9	11.0	11.0	11.1	10.9	11.0	11.0	11.0	10.9	11.0
Europe	11.9	10.7	10.0	10.3	10.2	10.2	10.4	10.6	10.6	10.6	10.6	10.5	10.5	10.7			

Source: European Information System on Alcohol and Health (Individual country estimates) and WHO HFA-DB (EU and Europe aggregated estimates) <http://apps.who.int/ghodata/?theme=OSH®ion=euro> - <http://data.euro.who.int/hadby/>
Notes: Recorded alcohol consumption per capita is defined as the recorded amount of alcohol consumed per adult (15+ years) over a calendar year in a country, in litres of pure alcohol. The indicator only takes into account the consumption which is recorded from production, import, export, and sales data, often via taxation. Blank cells indicate that data were not available.

Figure 7.1a Alcohol consumption, adults aged 15 years and over, 2007, Europe

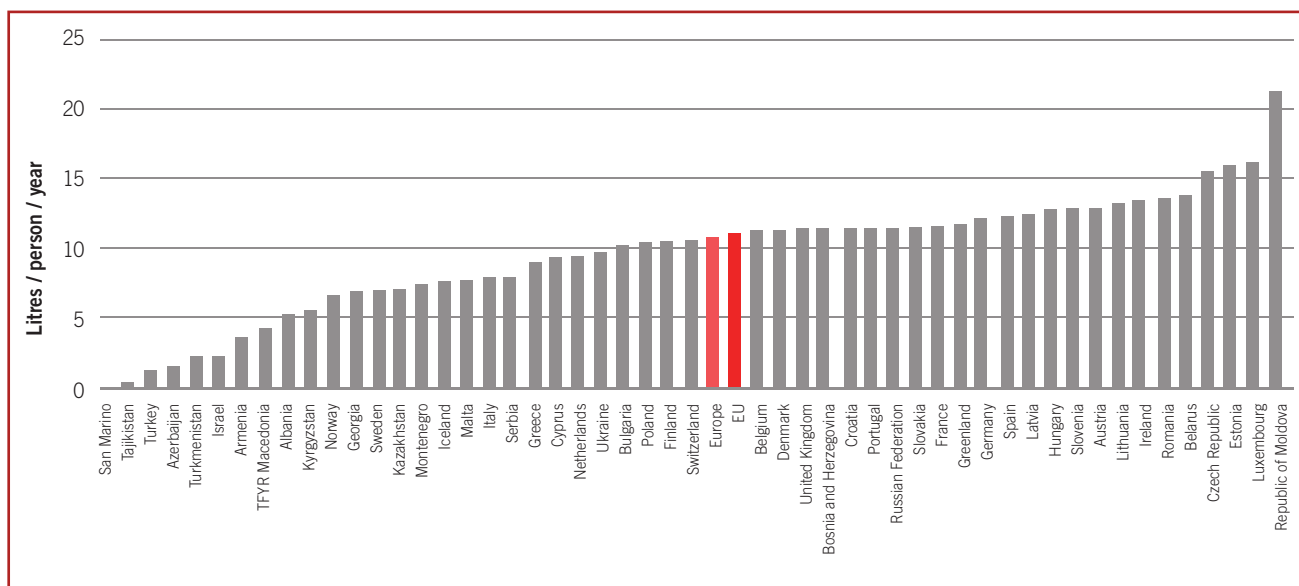
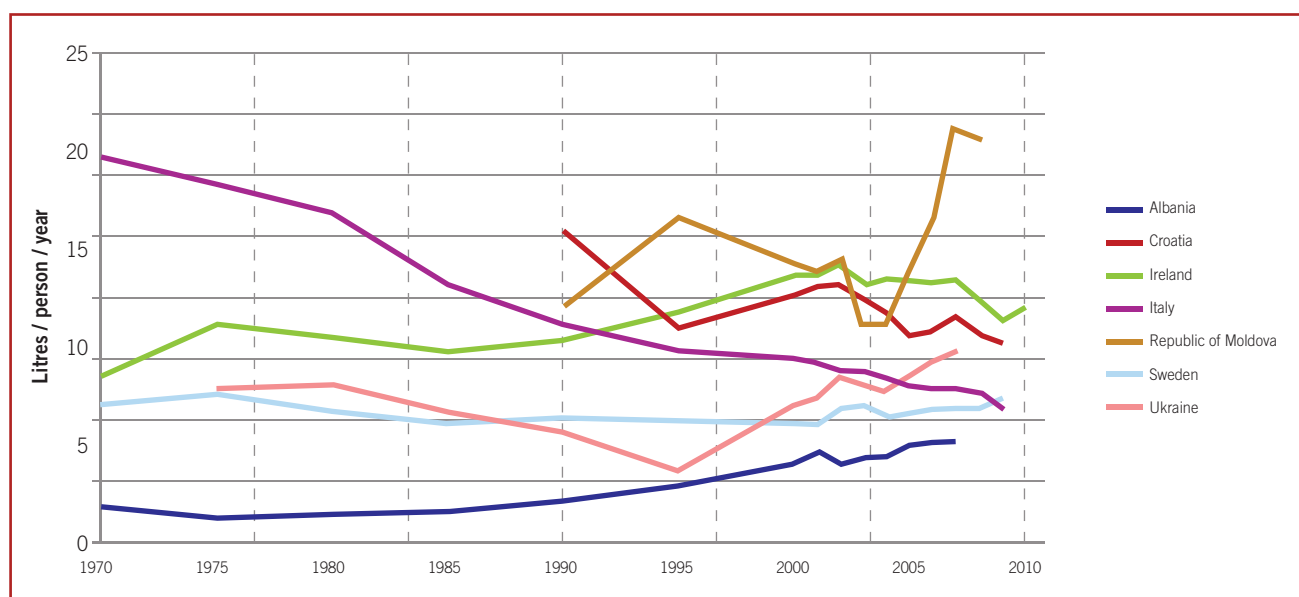


Figure 7.1b Alcohol consumption, adults aged 15 years and over, 1970 to 2010, selected countries



8. Blood pressure

Risk of CVD is directly related to both systolic and diastolic blood pressure levels¹. Lifestyle changes - particularly weight loss, an increase in physical activity, and a reduction in salt and alcohol intake – and drug treatment can effectively lower blood pressure.

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 (115 mmHg)².

The INTERHEART case-control study estimated that 22% of heart attacks in Western Europe and 25% of heart attacks in Central and Eastern Europe are due to a history of high blood pressure (hypertension) and that those with a history of hypertension are at just under twice the risk of a heart attack compared to those with no history of hypertension³.

The WHO Global Health Observatory provides national estimates of both hypertension prevalence and mean systolic blood pressure for men and women. Using as the definition of hypertension a systolic blood pressure greater than 140 or a diastolic blood pressure greater than 90, or blood pressure lowering medication use, there were no European countries in 2008 with age-standardized prevalence of hypertension below one third of the population.

WHO estimates of systolic blood pressure for the European region for 2008 show that among men aged 25 or over mean systolic blood pressure ranges between 124 mmHg (Turkey) and 138 mmHg (Estonia). Among women aged 25 or over WHO data suggest that the mean systolic blood pressure ranges between 118 mmHg (Iceland) and 133 mmHg (Armenia and Bosnia and Herzegovina) (Table 8.2). Trends in mean systolic blood pressure since 1980 show that among both men and women, average blood pressure levels have decreased in most countries. The largest decreases appear to have occurred in higher-income western and northern European countries, while levels have remained relatively stable in many eastern European countries (Table 8.2).

1 Lewington S, Clarke R, Qizilbash N, Peto R, Collins R. Age-specific relevance of usual blood pressure to vascular mortality: a meta-analysis of individual data for one million adults in 61 prospective studies. *Lancet* 2002;360(9349):1903-13.

2 World Health Organization. *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. Geneva: WHO, 2002.

3 Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004;364(9438):937-52.

Table 8.1 Prevalence of raised blood pressure or blood pressure medication use, adults aged 25 years and over, by sex, 2008, Europe

	Age-standardized estimate of prevalence of raised blood pressure (SBP≥140 OR DBP≥90 OR on medication)		
	Men (%)	Women (%)	Total (%)
Albania	48.0	42.0	44.9
Andorra	42.6	30.9	36.7
Armenia	49.8	46.0	47.8
Austria	42.6	33.4	38.0
Azerbaijan	46.0	41.1	43.4
Belarus	51.2	42.3	46.6
Belgium	39.3	30.4	34.8
Bosnia and Herzegovina	47.2	46.6	47.1
Bulgaria	48.1	40.9	44.5
Croatia	49.8	43.4	46.7
Cyprus	42.4	32.0	37.0
Czech Republic	47.6	37.6	42.7
Denmark	40.6	28.4	34.5
Estonia	52.9	42.2	47.3
Finland	47.4	36.3	41.9
France	42.3	29.3	35.7
Georgia	49.9	43.5	46.5
Germany	44.8	34.3	39.7
Greece	39.4	32.7	36.1
Hungary	50.0	41.0	45.5
Iceland	40.2	27.3	33.8
Ireland	47.0	34.2	40.6
Israel	37.4	29.9	33.6
Italy	42.2	33.6	37.9
Kazakhstan	48.5	41.4	44.8
Kyrgyzstan	47.1	42.8	45.0
Latvia	51.2	42.2	46.6
Lithuania	52.1	43.4	47.7
Luxembourg	42.1	31.3	36.7
Malta	43.3	33.8	38.6
Montenegro	49.6	42.0	45.6
Netherlands	42.4	30.8	36.6
Norway	46.3	35.2	40.9
Poland	49.3	42.4	46.0
Portugal	46.5	37.4	41.9
Republic of Moldova	48.4	43.3	45.9
Romania	47.1	41.7	44.5
Russian Federation	46.2	41.3	43.8
Serbia	50.1	43.0	46.6
Slovakia	49.6	42.0	45.8
Slovenia	50.4	42.3	46.4
Spain	41.5	31.7	36.7
Sweden	43.1	32.5	37.9
Switzerland	41.6	28.2	34.8
Tajikistan	46.4	43.3	44.8
TFYR Macedonia	48.0	42.6	45.4
Turkey	36.2	35.8	36.1
Turkmenistan	47.0	42.2	44.6
Ukraine	52.2	44.6	48.3
United Kingdom	42.2	32.8	37.5
Uzbekistan	41.5	36.5	39.1

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>
Notes: Age standardized estimates

Figure 8.1 Prevalence of raised blood pressure, adults aged 25 years and over, by sex, 2008, Europe

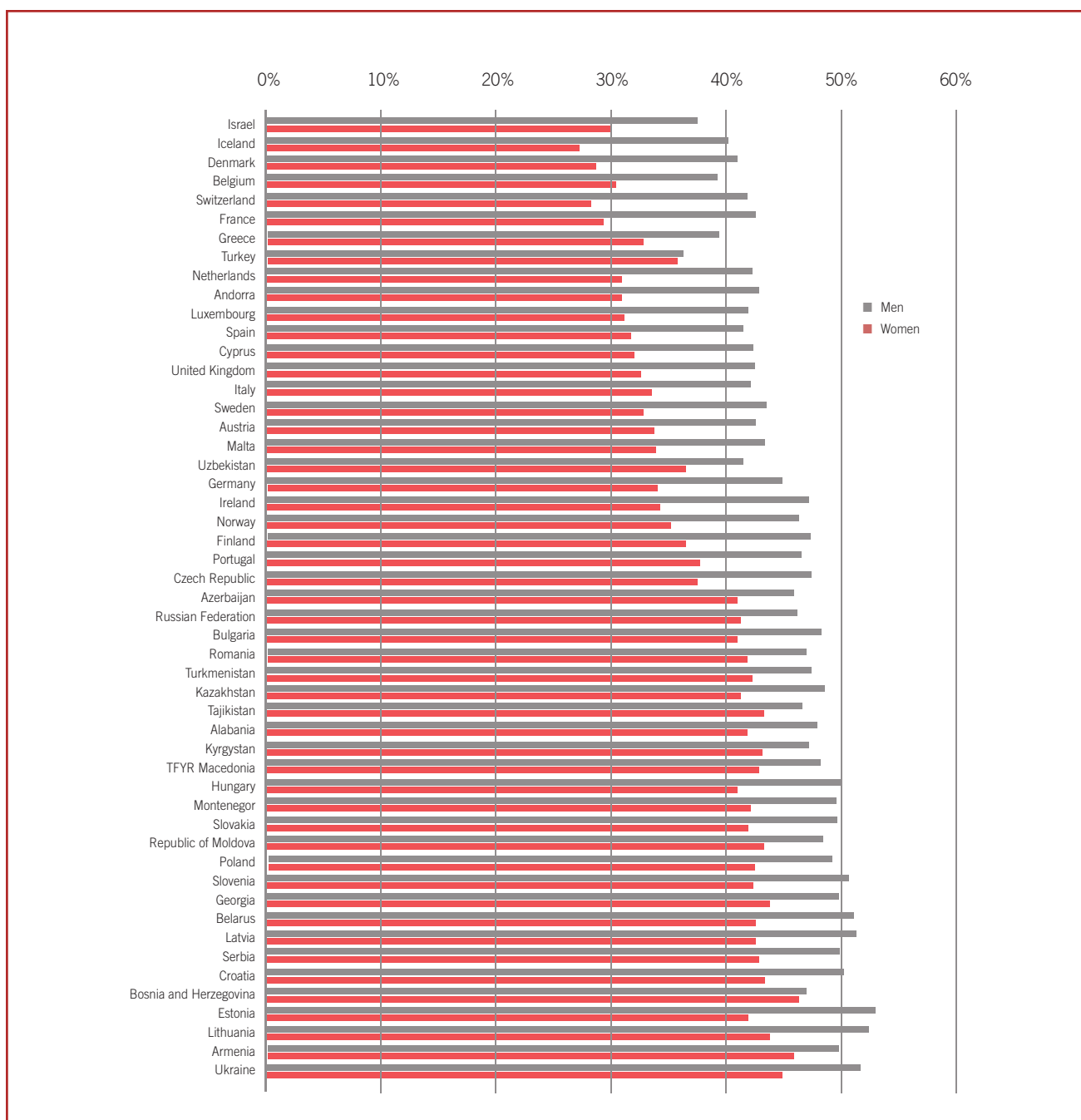


Table 8.2 Mean systolic blood pressure, adults aged 25 and over, by sex, 1980 to 2008, Europe

Men	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Albania	133	134	133	132	132	132	132	133	133	133	133	133	134
Andorra	141	137	136	134	133	133	132	132	132	132	132	132	131
Armenia	136	136	136	134	134	134	134	134	134	134	135	135	135
Austria	139	136	135	134	133	133	132	132	132	132	132	132	131
Azerbaijan	135	135	134	132	131	131	131	131	131	132	132	132	132
Belarus	138	138	137	136	135	135	135	135	136	136	136	136	136
Belgium	136	134	133	133	131	131	131	130	130	130	129	129	129
Bosnia and Herzegovina	132	133	133	132	132	132	132	132	133	133	133	133	133
Bulgaria	135	136	136	135	134	134	134	134	134	134	134	134	134
Croatia	138	138	138	137	136	136	135	135	135	135	135	135	135
Cyprus	135	133	133	133	132	132	132	132	132	132	131	131	131
Czech Republic	137	137	136	135	134	134	134	133	133	133	133	133	133
Denmark	137	134	133	132	131	131	131	131	131	130	130	130	130
Estonia	141	140	139	138	137	137	137	137	138	138	138	138	138
Finland	143	140	138	136	135	135	135	135	135	135	135	135	135
France	139	136	135	134	133	133	132	132	132	132	132	131	131
Georgia	138	139	138	136	135	135	135	135	135	135	135	135	135
Germany	140	138	138	138	137	136	136	135	135	134	134	133	133
Greece	134	131	130	130	129	129	129	129	129	129	129	129	129
Hungary	138	139	139	137	136	136	136	136	136	136	136	135	135
Iceland	138	134	132	130	130	130	130	130	130	130	130	130	129
Ireland	140	137	136	136	136	136	136	136	136	136	135	135	135
Israel	133	131	130	129	128	128	128	127	127	127	127	127	127
Italy	137	135	135	134	132	132	132	132	131	131	131	131	131
Kazakhstan	137	137	136	134	133	133	133	134	134	134	134	134	134
Kyrgyzstan	134	134	133	132	132	132	132	132	132	132	133	133	133
Latvia	139	138	138	136	135	135	135	136	136	136	136	136	136
Lithuania	140	140	139	137	136	136	136	136	136	136	137	137	137
Luxembourg	140	137	136	135	133	133	132	132	132	132	131	131	131
Malta	137	134	133	133	133	133	133	132	132	132	132	132	132
Montenegro	137	137	137	135	135	135	135	135	135	135	135	135	135
Netherlands	139	136	134	133	132	132	132	132	132	132	131	131	131
Norway	142	139	137	136	135	135	135	135	135	135	135	135	135
Poland	137	137	136	134	134	134	134	134	134	134	134	135	135
Portugal	138	136	136	135	135	135	135	135	135	135	135	135	135
Republic of Moldova	136	136	135	133	132	132	132	133	133	133	133	134	134
Romania	135	136	136	134	133	133	133	133	133	133	133	133	133
Russian Federation	135	135	134	132	131	131	131	131	131	132	132	132	132
Serbia	138	139	139	137	136	136	136	136	136	136	135	135	135
Slovakia	137	138	137	136	135	135	135	135	135	135	135	135	135
Slovenia	138	139	138	137	136	136	136	136	136	136	136	136	136
Spain	137	133	132	131	130	130	130	130	130	130	130	130	130
Sweden	139	136	134	133	133	133	133	133	133	132	132	132	132
Switzerland	139	136	134	132	131	131	131	131	131	131	131	131	131
Tajikistan	134	134	134	132	131	131	131	131	131	132	132	132	132
TFYR Macedonia	136	136	136	134	133	133	133	133	133	133	134	134	134
Turkey	126	126	126	126	126	126	125	125	125	125	124	124	124
Turkmenistan	135	135	134	132	132	132	132	132	132	132	133	133	133
Ukraine	140	139	138	136	135	135	135	136	136	136	137	137	137
United Kingdom	137	136	137	136	135	134	134	134	133	133	132	132	131
Uzbekistan	130	130	129	127	127	127	127	127	127	128	128	128	128

Table 8.2 continued...

Women	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Albania	133	132	131	130	129	129	129	129	129	129	129	129	129
Andorra	137	133	131	128	126	125	125	124	124	123	123	122	122
Armenia	136	136	135	133	133	133	133	133	133	133	133	133	133
Austria	134	132	130	129	127	126	126	126	125	125	125	124	124
Azerbaijan	132	132	131	130	129	129	129	129	129	129	129	129	129
Belarus	135	134	133	131	130	130	130	130	130	130	130	130	130
Belgium	131	129	129	128	126	125	125	124	124	123	123	122	122
Bosnia and Herzegovina	132	133	133	133	133	133	133	133	133	133	133	133	133
Bulgaria	136	134	133	131	130	129	129	129	129	129	129	128	128
Croatia	136	135	134	133	132	132	131	131	131	131	131	131	130
Cyprus	131	130	129	127	126	125	125	124	124	124	123	123	123
Czech Republic	136	134	133	130	128	127	127	127	127	126	126	126	126
Denmark	130	128	126	125	123	122	122	122	121	121	120	120	119
Estonia	138	136	134	131	130	130	130	130	130	130	129	129	129
Finland	138	136	134	132	130	129	129	128	128	128	127	127	127
France	132	130	128	126	124	123	123	122	122	122	121	121	120
Georgia	135	135	134	132	131	131	131	131	131	131	131	131	131
Germany	135	134	133	131	129	129	128	128	127	126	126	125	125
Greece	132	130	128	127	125	125	125	124	124	124	124	123	123
Hungary	135	134	133	131	130	130	130	129	129	129	129	129	128
Iceland	132	128	125	124	121	121	121	120	120	119	119	119	118
Ireland	131	129	129	128	127	126	126	126	126	125	125	125	125
Israel	130	129	128	127	125	124	124	123	123	122	122	121	121
Italy	136	133	131	129	126	126	126	125	125	125	124	124	124
Kazakhstan	134	134	132	131	130	129	129	129	129	129	129	129	129
Kyrgyzstan	131	130	130	129	129	129	129	129	129	130	130	130	130
Latvia	137	136	134	131	130	130	130	130	130	130	130	130	129
Lithuania	138	137	135	132	132	131	131	131	131	131	131	131	131
Luxembourg	134	131	130	128	126	126	125	125	124	124	123	123	122
Malta	135	133	131	130	128	127	127	126	126	126	125	125	124
Montenegro	135	134	133	131	130	130	130	130	130	130	129	129	129
Netherlands	132	130	128	127	125	124	124	124	123	123	122	122	122
Norway	137	134	132	131	129	128	128	128	127	127	127	126	126
Poland	138	135	133	131	130	130	130	130	130	130	130	130	130
Portugal	135	134	133	132	130	130	129	129	129	128	128	128	127
Republic of Moldova	133	132	132	131	130	130	130	130	130	130	130	130	130
Romania	134	134	133	131	130	130	130	129	129	129	129	129	129
Russian Federation	134	134	132	130	129	129	128	128	128	128	129	129	129
Serbia	137	136	135	133	131	131	131	131	131	130	130	130	130
Slovakia	136	135	134	132	131	130	130	130	130	130	130	130	129
Slovenia	136	135	134	132	131	131	131	130	130	130	130	130	130
Spain	134	130	128	126	124	124	124	123	123	123	123	122	122
Sweden	133	131	129	128	126	126	125	125	124	124	124	123	123
Switzerland	131	129	127	125	123	122	122	121	121	121	120	120	120
Tajikistan	130	130	130	129	129	129	129	129	130	130	130	130	130
TFYR Macedonia	135	134	133	132	131	131	131	130	130	130	130	130	130
Turkey	127	128	128	128	127	127	126	126	126	125	125	124	124
Turkmenistan	132	132	131	130	129	129	129	129	129	129	129	129	129
Ukraine	136	136	134	133	131	131	131	131	131	132	132	132	132
United Kingdom	131	131	132	131	129	128	128	127	127	126	125	125	124
Uzbekistan	127	126	125	124	124	124	124	124	124	124	124	124	125

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>

Notes: Age standardized estimates

9. Blood cholesterol

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

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 (3.8 mmol/L)¹.

The WHO Global Health Observatory provides national estimates of the prevalence of raised blood cholesterol levels (both the proportion of the population in excess of 5.0mmol/L and in excess of 6.2mmol/L) and trends in mean blood cholesterol levels for men and women. The highest rates of raised cholesterol levels were seen in the high income countries of Northern and Western Europe, while the lowest rates were seen in countries of the former Soviet Union (Table 9.1). The population with the lowest proportion of adults aged 25 years and older with raised blood cholesterol levels was Tajikistan, where 24% of the population had levels above 5.0mmol/L and less than 5% had levels above 6.2mmol/L. In contrast, Iceland had 70% of the population with blood cholesterol levels above 5.0mmol/L and 29% with levels above 6.2mmol/L. In high income countries with high proportions of the population with raised cholesterol levels, the proportion of men with raised cholesterol generally exceeded that of women. In countries with low rates of raised cholesterol, more women than men were affected.

The WHO estimates of mean total cholesterol for men aged 25 years and over in Europe show that in 2008 mean total cholesterol ranged from 4.5 mmol/L or lower in Tajikistan, Uzbekistan, Kyrgyzstan, Azerbaijan and Turkmenistan to 5.5mmol/L or over in Denmark, Andorra, Germany, Luxembourg and Iceland. Among women aged 25 or over WHO data suggest that the mean total cholesterol was at or below 4.5 mmol/L in Tajikistan, Uzbekistan and Kyrgyzstan (Turkey) and 5.5mmol/L or greater in Andorra, Luxembourg and Iceland (Table 9.2).

Over the period 1980 to 2008, estimated mean population total cholesterol levels reduced in all countries for which estimates were available for both men and women, with the exception of Poland, where levels were stable over the period (Table 9.2).

¹ World Health Organization. *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. Geneva: WHO, 2002.

Table 9.1 Prevalence of raised blood cholesterol, adults aged 25 years and over, by sex, 2008, Europe

	Age-standardized estimate of prevalence of raised blood cholesterol (≥ 5.0 mmol/L)			Age-standardized estimate of prevalence of raised blood cholesterol (≥ 6.2 mmol/L)		
	Men (%)	Women (%)	Total (%)	Men (%)	Women (%)	Total (%)
Albania	46.3	44.3	45.3	11.3	12.6	12.0
Andorra	69.7	64.1	67.1	26.7	24.1	25.5
Armenia	39.6	41.5	40.8	8.9	11.0	10.1
Austria	61.3	57.7	59.7	19.6	18.9	19.4
Azerbaijan	33.1	36.0	34.8	6.7	8.7	7.8
Belarus	50.5	50.8	51.1	13.9	15.8	15.3
Belgium	64.6	59.9	62.4	22.2	20.8	21.6
Bosnia and Herzegovina	38.5	39.5	39.2	8.5	10.1	9.4
Bulgaria	50.3	49.0	49.9	13.5	14.5	14.2
Croatia	49.4	49.7	49.8	13.1	14.9	14.3
Cyprus	58.7	55.5	57.1	17.8	17.7	17.7
Czech Republic	54.4	52.7	53.9	14.7	15.7	15.5
Denmark	68.3	61.8	65.2	26.0	24.6	25.5
Estonia	56.0	56.7	56.7	17.0	19.3	18.5
Finland	57.5	59.3	59.0	16.4	21.7	19.7
France	63.5	60.2	62.0	20.2	20.7	20.6
Georgia	35.6	38.0	37.1	7.5	9.5	8.7
Germany	69.6	61.4	65.6	27.1	21.9	24.6
Greece	50.1	45.9	48.2	12.7	12.8	12.8
Hungary	55.4	54.0	55.2	16.5	18.5	17.9
Iceland	72.5	67.0	69.8	30.2	27.7	29.1
Ireland	65.5	59.5	62.6	22.9	20.4	21.7
Israel	51.8	54.8	53.5	13.3	15.5	14.5
Italy	62.3	61.6	62.2	19.0	20.8	20.1
Kazakhstan	45.0	45.6	45.7	11.0	12.9	12.3
Kyrgyzstan	28.3	31.2	30.1	5.3	7.0	6.3
Latvia	55.3	55.2	55.7	16.6	18.6	18.0
Lithuania	54.9	54.0	54.8	16.1	17.2	17.0
Luxembourg	69.5	64.1	66.9	26.5	24.3	25.6
Malta	60.7	56.9	59.0	19.2	18.9	19.2
Montenegro	48.4	47.9	48.3	12.6	13.9	13.4
Netherlands	62.5	58.2	60.5	20.4	19.6	20.1
Norway	64.2	59.3	61.9	21.8	20.3	21.2
Poland	59.9	53.8	57.1	18.3	16.5	17.6
Portugal	57.2	54.3	55.9	16.7	16.5	16.7
Republic of Moldova	35.2	36.9	36.5	7.5	9.3	8.6
Romania	46.0	45.2	45.8	11.4	12.6	12.1
Russian Federation	47.3	52.1	50.6	12.3	17.1	15.4
Serbia	47.4	52.0	49.8	11.9	14.9	13.5
Slovakia	52.7	51.7	52.5	14.8	16.1	15.7
Slovenia	56.8	55.3	56.3	17.3	18.4	18.1
Spain	58.9	52.9	56.1	17.1	15.4	16.4
Sweden	56.1	47.0	51.8	16.3	13.2	14.8
Switzerland	61.1	56.9	59.2	18.7	18.5	18.8
Tajikistan	22.5	25.3	24.0	3.8	5.3	4.6
TFYR Macedonia	42.4	43.7	43.2	10.0	11.8	11.0
Turkey	38.1	41.0	39.7	7.8	10.0	9.0
Turkmenistan	33.8	35.8	35.1	6.9	8.7	7.9
Ukraine	43.1	44.7	44.4	10.4	12.7	11.9
United Kingdom	65.2	61.3	63.4	21.6	21.3	21.7
Uzbekistan	24.2	28.9	26.8	4.1	6.5	5.4

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>

Notes: Age standardized estimates

Figure 9.1 Prevalence of raised cholesterol ($\geq 6.2\text{mmol/L}$), by sex, 2008, Europe

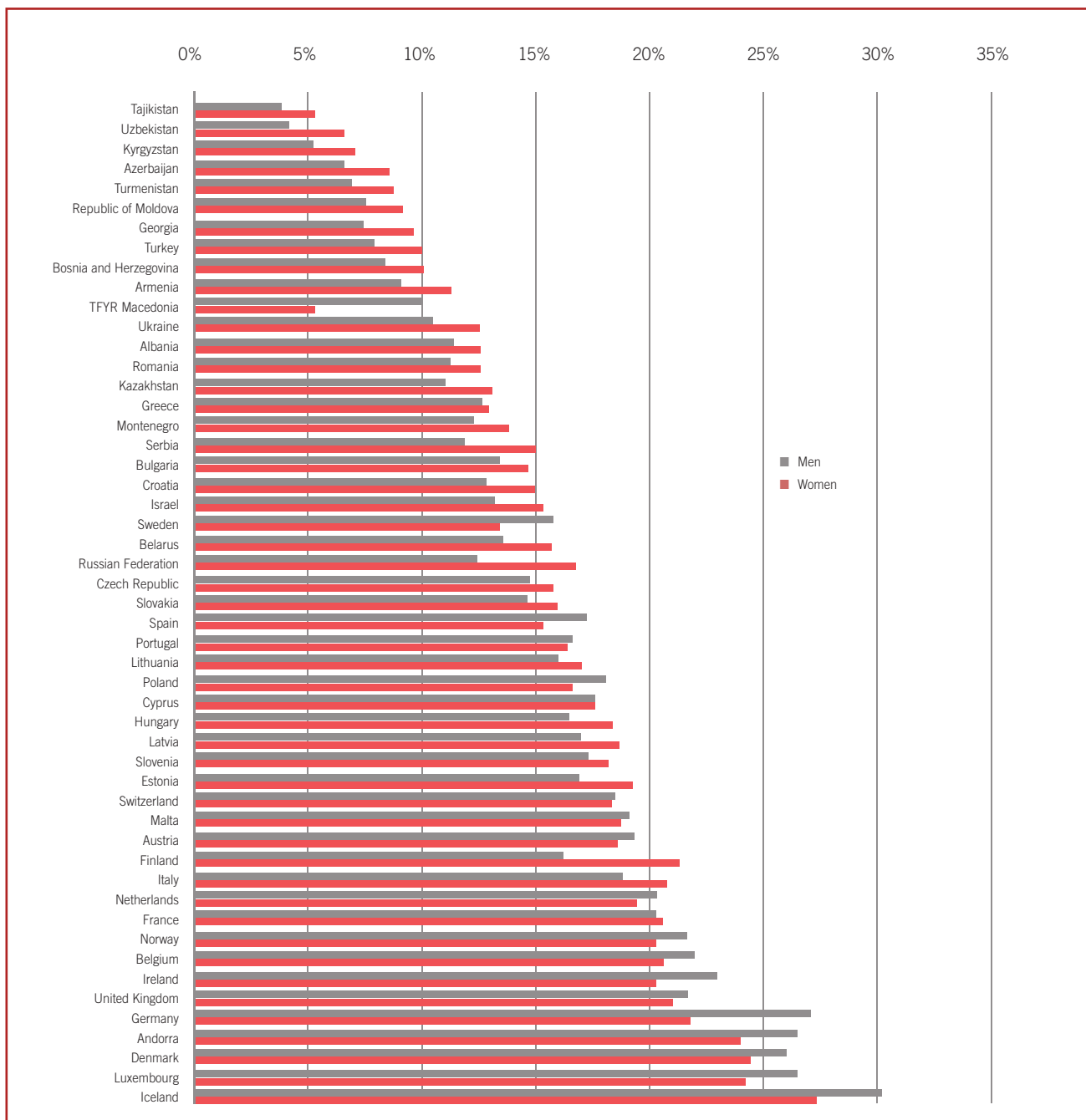


Table 9.2 Mean blood cholesterol levels, by sex, 1980 to 2008, Europe

Men	Age-standardized estimate of mean blood cholesterol levels (mmol/L)												
	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Albania	5.0	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Andorra	6.2	6.0	5.9	5.8	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Armenia	5.2	5.1	5.0	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Austria	5.9	5.8	5.7	5.6	5.5	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.3
Azerbaijan	5.1	5.1	5.0	4.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Belarus	5.4	5.3	5.3	5.2	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0
Belgium	6.1	6.0	5.9	5.7	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.4	5.4
Bosnia and Herzegovina	4.9	4.9	4.9	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Bulgaria	5.3	5.3	5.3	5.2	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0
Croatia	5.4	5.4	5.3	5.2	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Cyprus	5.5	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2
Czech Republic	6.0	5.9	5.8	5.7	5.5	5.4	5.4	5.3	5.3	5.2	5.2	5.2	5.1
Denmark	5.9	5.8	5.8	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6	5.5	5.5
Estonia	5.6	5.5	5.5	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Finland	6.2	6.0	5.8	5.5	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2
France	6.0	5.9	5.8	5.7	5.6	5.5	5.5	5.5	5.5	5.4	5.4	5.4	5.4
Georgia	5.2	5.2	5.1	4.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Germany	5.8	5.9	5.9	5.9	5.8	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6
Greece	5.5	5.4	5.3	5.2	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0
Hungary	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Iceland	6.1	6.1	6.0	5.9	5.8	5.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Ireland	6.0	5.8	5.7	5.6	5.6	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.4
Israel	5.8	5.7	5.5	5.4	5.3	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.0
Italy	5.7	5.5	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Kazakhstan	5.3	5.2	5.1	5.0	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.9	4.9
Kyrgyzstan	5.0	4.9	4.8	4.6	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
Latvia	5.6	5.5	5.4	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Lithuania	5.8	5.7	5.6	5.5	5.2	5.2	5.2	5.2	5.2	5.2	5.1	5.1	5.1
Luxembourg	6.2	6.1	6.0	5.9	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6
Malta	5.9	5.8	5.7	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.3	5.3	5.3
Montenegro	5.3	5.3	5.3	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Netherlands	5.9	5.8	5.7	5.6	5.5	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.3
Norway	6.0	5.9	5.7	5.6	5.5	5.5	5.5	5.5	5.5	5.4	5.4	5.4	5.4
Poland	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Portugal	5.5	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2
Republic of Moldova	5.3	5.2	5.1	4.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Romania	5.3	5.2	5.2	5.1	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Russian Federation	5.6	5.5	5.3	5.2	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Serbia	5.1	5.1	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Slovakia	5.4	5.3	5.3	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Slovenia	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Spain	5.6	5.5	5.5	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.2
Sweden	6.0	5.9	5.7	5.5	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2
Switzerland	6.0	5.9	5.8	5.6	5.5	5.4	5.4	5.4	5.4	5.4	5.3	5.3	5.3
Tajikistan	5.0	4.9	4.8	4.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
TFYR Macedonia	5.3	5.3	5.2	5.0	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8
Turkey	4.8	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Turkmenistan	5.1	5.0	4.9	4.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Ukraine	5.5	5.4	5.3	5.1	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8
United Kingdom	6.2	6.1	5.9	5.7	5.6	5.5	5.5	5.5	5.5	5.5	5.4	5.4	5.4
Uzbekistan	5.0	4.9	4.8	4.5	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3

Table 9.2 continued...

Women	Age-standardized estimate of mean blood cholesterol levels (mmol/L)												
	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Albania	5.1	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Andorra	6.1	6.0	5.8	5.7	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Armenia	5.3	5.3	5.1	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Austria	5.9	5.8	5.7	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3
Azerbaijan	5.3	5.2	5.1	4.9	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.7	4.7
Belarus	5.5	5.5	5.4	5.3	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1	5.1
Belgium	6.0	5.9	5.8	5.6	5.5	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.3
Bosnia and Herzegovina	5.0	5.0	4.9	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Bulgaria	5.3	5.4	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0
Croatia	5.4	5.4	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.0
Cyprus	5.5	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2
Czech Republic	5.9	5.9	5.8	5.7	5.5	5.5	5.4	5.4	5.3	5.3	5.2	5.2	5.1
Denmark	6.0	5.8	5.7	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.4	5.4	5.4
Estonia	5.7	5.6	5.6	5.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2
Finland	6.2	6.0	5.8	5.6	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4
France	6.0	5.9	5.7	5.6	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.3
Georgia	5.4	5.3	5.2	4.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Germany	5.8	5.8	5.8	5.8	5.7	5.6	5.6	5.6	5.5	5.5	5.4	5.4	5.4
Greece	5.6	5.4	5.3	5.1	5.0	5.0	5.0	5.0	5.0	4.9	4.9	4.9	4.9
Hungary	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Iceland	6.2	6.1	6.0	5.8	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6
Ireland	5.9	5.8	5.6	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.3
Israel	5.9	5.8	5.6	5.5	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2
Italy	5.6	5.5	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.4
Kazakhstan	5.4	5.3	5.2	5.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Kyrgyzstan	5.2	5.1	5.0	4.8	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.5	4.5
Latvia	5.7	5.6	5.5	5.4	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Lithuania	5.8	5.8	5.8	5.6	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2
Luxembourg	6.2	6.1	5.9	5.8	5.6	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.5
Malta	6.1	5.9	5.7	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Montenegro	5.4	5.3	5.3	5.2	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0
Netherlands	5.9	5.8	5.6	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3
Norway	6.0	5.8	5.7	5.6	5.5	5.4	5.4	5.4	5.4	5.4	5.3	5.3	5.3
Poland	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Portugal	5.6	5.5	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Republic of Moldova	5.4	5.4	5.3	5.0	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Romania	5.3	5.3	5.3	5.1	5.0	5.0	5.0	5.0	5.0	4.9	4.9	4.9	4.9
Russian Federation	5.8	5.7	5.6	5.4	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1	5.1
Serbia	5.2	5.1	5.1	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.1
Slovakia	5.4	5.4	5.4	5.3	5.2	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1
Slovenia	5.5	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2
Spain	5.6	5.5	5.4	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.1	5.1	5.1
Sweden	6.1	6.0	5.8	5.5	5.3	5.2	5.2	5.1	5.1	5.1	5.0	5.0	5.0
Switzerland	6.0	5.9	5.7	5.6	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.2
Tajikistan	5.2	5.1	5.0	4.7	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3
TFYR Macedonia	5.4	5.3	5.2	5.1	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Turkey	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8
Turkmenistan	5.3	5.2	5.1	4.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Ukraine	5.5	5.5	5.4	5.2	5.0	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9
United Kingdom	6.2	6.0	5.9	5.7	5.5	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4
Uzbekistan	5.2	5.1	4.9	4.7	4.6	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.4

Source: WHO Global Health Observatory - <http://www.who.int/gho/database/en/>

Notes: Age standardized estimates

10. Overweight and obesity

Overweight and obesity increase the risk of CVD. 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.

Prevalence of overweight and obesity

There is relatively little comparable international data on the prevalence of overweight and obesity. Data on the prevalence of overweight and obesity in Europe are usually taken from national health surveys and there are limitations to how comparable the data are, due to differences in the survey designs (sampling frames, age range etc.) and methods (measured or self-reported height and weight values).

The International Obesity Task Force (IOTF) collates up-to-date data on national and regional surveys of obesity prevalence (Table 10.1 and Figures 10.1a and 10.1b). These data show that the combined prevalence of overweight and obesity among adult men ranges from 31% in Kyrgyzstan to 83% in Luxembourg. In 34 of 40 countries with available data, more than half of adult men were affected by overweight and obesity (Table 10.1).

Among women the lowest prevalence of overweight and obesity was in Turkmenistan (24%), while the highest was in Luxembourg (63%). More than half of women were affected by overweight and obesity in 21 of 45 countries with available data.

WHO data from 2008, which estimate mean Body Mass Index (BMI) by sex at a national level, show that national mean BMI levels for both men and women across Europe vary between around 24 and 28 kg/m², well above the optimum mean BMI value for the health of a population (21kg/m²)¹. The highest mean BMI among men was in the Czech Republic. Other countries with high mean BMI values for men were mostly from Southern and Western Europe. The lowest mean BMI for men was in Tajikistan, and the next 8 lowest values were all in former Soviet Union countries. Mean BMIs were lower for women than men in most (38 of 51) countries. Among women the lowest mean BMI was again found in Tajikistan, however the other lower values were more geographically mixed than for men. Switzerland, France and Italy all feature among the five countries with the lowest mean BMI value for women, alongside Turkmenistan. The highest mean BMI values for women were in the Russian Federation, Armenia, Israel, Azerbaijan and Turkey.

Trends in BMI

The WHO data show consistent increases in population mean BMI from 1980 to 2008 in almost all countries, particularly among men, although there was a small dip around the end of the 1990s in many of the former Soviet countries (Table 10.2). The largest overall increases in mean BMI for both men and women were in Israel, Turkey and the United Kingdom. In these countries, mean BMI increased by more than two units (kg/m²) between 1980 and 2008.

Overweight and obesity in children

Data on childhood overweight and obesity are even more difficult to compare across countries and surveys than for adults. Body composition changes rapidly through childhood and adolescence which means that classification of overweight and obesity must be age- and sex-specific. There are several definitions in common use, based on age- and sex-specific BMI cut-offs, including the recently released WHO Child Growth Standards (from birth to 5 years)² and Growth Reference (from 5 to 19 years)³. The most common system used for international comparison in currently published studies, however, is that developed by Cole et al and supported by the IOTF, which provides age and sex-specific BMI cut-off values that correspond to a BMI of 25 (the adult cut-off for overweight) and 30 (adult cut-off for obesity)^{4, 5}.

In addition to issues of defining overweight and obesity, inter-country comparisons of the most recent data on the prevalence of childhood obesity in Europe is hampered by widely varying age groups in survey samples and differing methods of data collection. Bearing these limitations in mind, however, the results suggest that the highest levels of childhood obesity among boys in Europe are consistently found in Southern European countries (Table 10.3). More than 30% of boys are overweight (including obesity) in Greece, Spain, Italy, Malta and Cyprus, and 45% in Crete are overweight. The lowest rates of overweight and obesity among boys were in Latvia, Turkey, Estonia, Norway and France. The lowest rates of overweight among girls were all seen in countries where data had been self-reported: Latvia, Estonia, Romania and Luxembourg. The highest overweight rates for girls were again found in Southern Europe, with more than 30% of girls in Crete, Italy and Spain overweight.

In response to this important gap, the WHO European region has established the Childhood Obesity Surveillance Initiative (COSI) in fifteen countries. The system aims to routinely measure trends in overweight and obesity among 6 to 9 year old children, in order to understand the progress of the obesity epidemic in this population group and to permit inter-country comparisons within the European Region⁶.

1 World Health Organization. *Obesity: preventing and managing the global epidemic. Report of a WHO consultation. World Health OrganTechRepSer 2000;894:i-xii, 1-253.*

2 WHO Multicentre Growth Reference Study Group. *WHO Child Growth Standards based on length/height, weight and age. Acta PaediatrSuppl 2006;450:76-85.*

3 de Onis M, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J. *Development of a WHO growth reference for school-aged children and adolescents. Bull World Health Organ 2007;85(9):660-7.*

4 Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. *Establishing a standard definition for child overweight and obesity worldwide: international survey. British Medical Journal 2000;320(7244):1-6.*

5 Cole TJ, Lobstein T. *Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity. Pediatr Obes 2012.*

6 Wijnhoven T, et al. *WHO European Childhood Obesity Surveillance Initiative 2008: weight, height and body mass index in 6-9-year-old children. Pediatr Obes 2012;in press.*

Table 10.1 Prevalence of overweight and obesity, by sex, latest available year, Europe

	Year	Males		Females	
		Overweight (%)	Obese (%)	Overweight (%)	Obese (%)
Albania	2008-09	44.8	8.5	29.6	9.7
Armenia	2005			26.9	15.5
Austria	2005-06	42.3	23.3	32.4	20.8
Azerbaijan	2006	35.8	4.3	29.5	17.9
Belgium	2002-04	41.4	10.7	29.8	10.2
Bosnia & Herzegovina	2002		17		25
Bulgaria	2004	39.6	13.4	32.2	19.2
Croatia	2003	46.7	21.6	38.7	22.7
Cyprus	1999-00	46	26.6	34.3	23.7
Czech Republic	2008	42.8	23.9	29.2	22.3
Denmark*†	2005	41.4	11.8	25.6	11.8
England	2010	42	26	32	26
Estonia*	2004	32	13.7	25.7	14.9
Finland*	2005	44.8	14.9	26.7	13.5
France	2006	41	16.1	23.8	17.6
Germany	2005-07	45.5	20.5	29.5	21.1
Greece†	2001-03	50.8	27.9	29.3	25.6
Hungary*	2004	41.8	17.1	31.3	18.2
Iceland	1991-06	47.3	17	35.2	18.3
Israel	1999-01	45.8	19.9	33.1	25.7
Ireland	2008-10	43.8	25.8	30.9	21.3
Ireland (Northern)	2005-06	39	25	30	23
Italy*	2005	42.5	10.5	26.1	9.1
Kazakhstan	1999			19.9	12.6
Kyrgyzstan	1993	26.4	4.2	24.3	10.7
Lithuania*	2006	35.7	20.6	29.7	19.2
Luxembourg	2007	62	21	44	19
Malta*	2003	46.5	22.9	34.3	16.9
Moldova	2005			23.3	18.2
Netherlands	1998-02	43.5	10.4	28.5	10.1
Norway†	1995-97	53.2	15.5	40	21
Poland	2003-07	40.3	20.8	28.4	23.8
Portugal	2003-05	45.2	15	34.4	13.4
Romania*	2000	38.1	7.7	28.6	9.5
Russia	2000	30.7	10.3	27.4	21.6
Scotland	2010	39.5	26.6	32.2	28.1
Serbia	2000	43	14.3	31	20
Slovakia	2007	39.5	18.1	24.4	15.9
Slovenia*	2001	50	16.5	30.9	13.8
Spain	2008-10	46.4	24.4	32.5	21.4
Sweden†	2002	43.5	14.8	26.6	11
Switzerland*	2007	37.8	8.6	20.9	7.7
Turkey†	2001-02	46.5	16.5	28.6	29.4
Turkmenistan	2000			16	7.8
Uzbekistan	2002	26.5	5.4	20.6	7.1
Wales*	2009	41	21	31	21

Source: IOTF Global Prevalence of Adult Obesity http://www.iaso.org/site_media/uploads/Prevalence_of_Adult_Obesity_19th_January_2012.pdf

Notes: Overweight defined as BMI between 25 and 29.9kg/m², Obesity defined as BMI>30kg/m². Specific age group of study samples varies. See source for details. Blank cells indicate data were not available

* Indicates height and weight data were self-reported.

† Indicates a sub-national (regional) sample.

Figure 10.1a Prevalence of obesity among adult men, latest available year, Europe

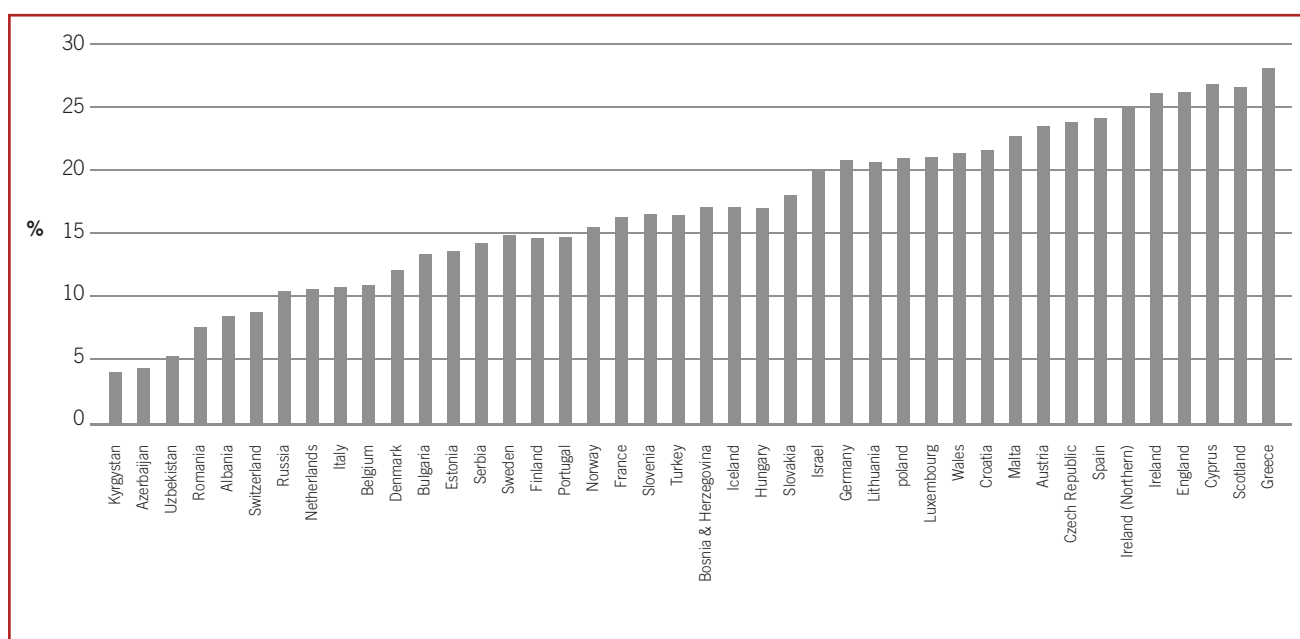


Figure 10.1b Prevalence of obesity among adult women, latest available year, Europe

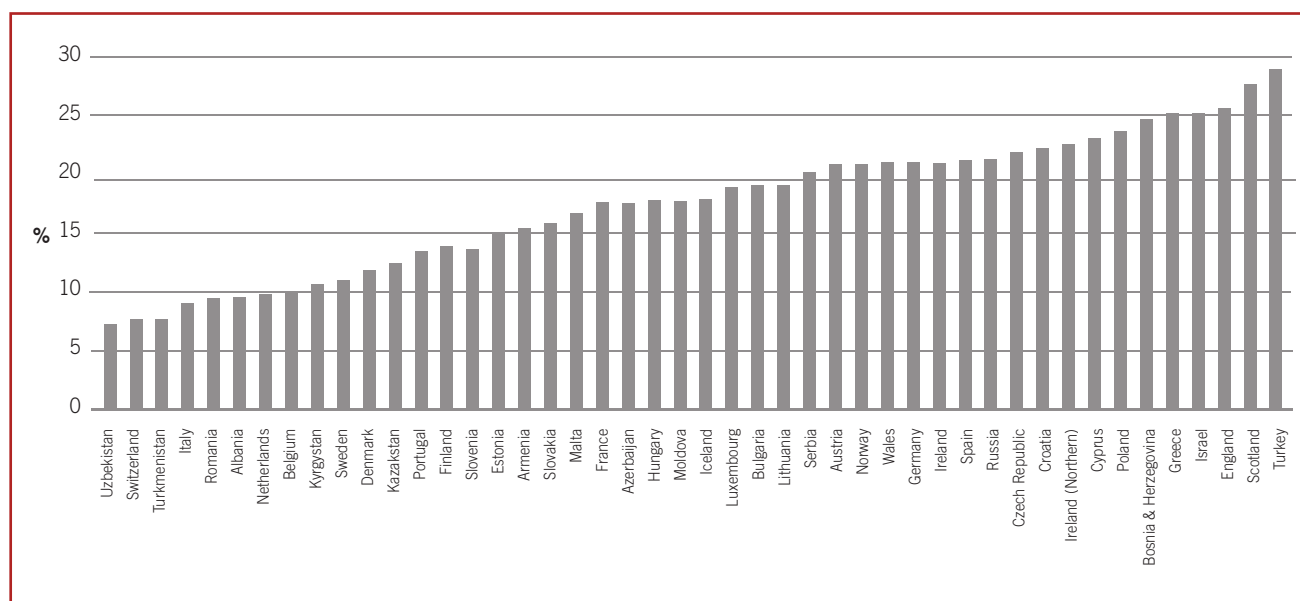


Table 10.2 Mean BMI, adults aged 20 years and over, by sex, 1980 to 2008, Europe

Men	Age standardised estimate of mean BMI (kg/m²)									
	1980	1985	1990	1995	2000	2005	2006	2007	2008	
Albania	25.0	25.1	25.2	25.2	25.5	26.2	26.3	26.5	26.6	
Andorra	25.7	25.8	26.1	26.4	26.8	27.3	27.4	27.5	27.6	
Armenia	23.8	24.0	24.2	24.0	24.2	24.8	25.0	25.2	25.4	
Austria	24.8	25.0	25.3	25.6	25.8	26.2	26.3	26.4	26.4	
Azerbaijan	24.4	24.6	24.8	24.6	24.5	25.1	25.3	25.5	25.6	
Belarus	24.8	24.9	25.0	25.1	25.3	25.8	25.9	26.1	26.2	
Belgium	25.1	25.2	25.5	25.8	26.2	26.5	26.6	26.7	26.8	
Bosnia and Herzegovina	25.1	25.3	25.3	25.0	25.5	26.3	26.5	26.6	26.8	
Bulgaria	25.1	25.4	25.6	25.7	25.8	26.2	26.4	26.5	26.6	
Croatia	25.1	25.3	25.5	25.5	25.9	26.4	26.5	26.6	26.8	
Cyprus	25.2	25.5	25.9	26.3	26.8	27.2	27.3	27.4	27.5	
Czech Republic	26.2	26.5	26.7	27.0	27.3	27.7	27.8	27.9	28.0	
Denmark	24.6	24.6	24.7	25.0	25.3	25.8	25.9	26.0	26.1	
Estonia	24.6	24.7	24.8	24.8	25.2	25.9	26.0	26.2	26.3	
Finland	25.4	25.5	25.7	25.9	26.1	26.5	26.6	26.7	26.8	
France	24.7	24.8	25.0	25.2	25.4	25.7	25.7	25.8	25.9	
Georgia	24.6	24.8	25.0	24.6	24.6	25.2	25.3	25.4	25.6	
Germany	25.4	25.7	25.9	26.3	26.7	27.0	27.0	27.1	27.2	
Greece	24.7	24.9	25.1	25.4	25.7	26.1	26.2	26.3	26.4	
Hungary	25.2	25.6	25.9	26.1	26.4	26.9	27.1	27.2	27.3	
Iceland	24.8	25.2	25.5	25.8	26.3	26.9	27.0	27.1	27.2	
Ireland	25.8	25.9	26.1	26.4	27.0	27.4	27.5	27.6	27.7	
Israel	24.7	25.0	25.3	25.7	26.3	26.8	26.9	27.0	27.1	
Italy	25.4	25.4	25.5	25.7	25.9	26.3	26.4	26.4	26.5	
Kazakhstan	24.5	24.8	24.9	24.9	25.0	25.7	25.9	26.1	26.3	
Kyrgyzstan	24.3	24.4	24.5	24.3	24.2	24.5	24.6	24.7	24.8	
Latvia	25.1	25.2	25.3	25.3	25.5	26.1	26.2	26.4	26.5	
Lithuania	26.0	26.0	26.0	25.8	26.0	26.5	26.7	26.8	26.9	
Luxembourg	25.0	25.2	25.6	26.2	26.6	27.1	27.2	27.3	27.4	
Malta	25.6	25.9	26.1	26.6	27.1	27.5	27.6	27.6	27.7	
Montenegro	25.3	25.5	25.7	25.6	25.9	26.4	26.5	26.6	26.8	
Netherlands	24.0	24.2	24.4	24.8	25.2	25.6	25.7	25.8	25.9	
Norway	24.7	24.9	25.2	25.6	26.1	26.6	26.7	26.8	27.0	
Poland	25.0	25.2	25.3	25.5	25.9	26.4	26.5	26.6	26.7	
Portugal	25.0	25.0	25.3	25.7	26.1	26.5	26.5	26.6	26.7	
Republic of Moldova	24.6	24.6	24.6	24.2	23.9	24.0	24.1	24.2	24.3	
Romania	24.6	24.7	24.8	24.6	24.7	25.2	25.3	25.5	25.6	
Russian Federation	25.0	25.0	25.0	25.0	25.0	25.6	25.7	25.9	26.0	
Serbia	25.6	25.8	26.0	26.0	26.3	26.8	26.9	27.1	27.2	
Slovakia	25.4	25.6	25.9	26.0	26.4	26.8	26.9	27.0	27.1	
Slovenia	25.6	25.8	26.0	26.2	26.7	27.3	27.4	27.5	27.6	
Spain	25.3	25.4	25.7	26.1	26.6	27.2	27.3	27.4	27.5	
Sweden	24.7	24.9	25.1	25.4	25.8	26.1	26.2	26.3	26.4	
Switzerland	25.1	25.2	25.4	25.6	25.8	26.0	26.1	26.2	26.2	
Tajikistan	24.0	24.2	24.2	23.7	23.3	23.5	23.6	23.7	23.8	
TFYR Macedonia	25.2	25.4	25.5	25.5	25.8	26.2	26.3	26.5	26.6	
Turkey	23.5	23.9	24.5	25.1	25.7	26.3	26.4	26.6	26.7	
Turkmenistan	24.3	24.4	24.5	24.3	24.3	24.8	24.9	25.0	25.2	
Ukraine	24.8	24.9	25.0	24.9	24.7	25.1	25.2	25.3	25.5	
United Kingdom	24.7	25.0	25.6	26.1	26.7	27.1	27.2	27.3	27.4	
Uzbekistan	24.5	24.7	24.7	24.7	24.7	25.0	25.1	25.2	25.3	

Table 10.2 continued...

Women	Age standardised estimate of mean BMI (kg/m²)								
	1980	1985	1990	1995	2000	2005	2006	2007	2008
Albania	25.2	25.2	25.1	24.9	25.1	25.4	25.5	25.6	25.6
Andorra	25.6	25.6	25.7	25.9	26.0	26.3	26.3	26.3	26.4
Armenia	25.9	26.2	26.3	26.0	26.3	26.9	27.0	27.2	27.3
Austria	23.9	24.1	24.3	24.5	24.7	24.9	25.0	25.0	25.1
Azerbaijan	26.2	26.5	26.7	26.5	26.4	27.1	27.3	27.5	27.7
Belarus	26.3	26.2	26.1	26.0	26.0	26.3	26.4	26.6	26.7
Belgium	25.0	24.9	25.0	25.1	25.1	25.2	25.2	25.2	25.2
Bosnia and Herzegovina	25.0	25.3	25.4	25.2	25.8	26.2	26.2	26.3	26.4
Bulgaria	25.6	25.7	25.7	25.4	25.2	25.3	25.4	25.4	25.5
Croatia	25.2	25.2	25.0	24.6	24.6	25.0	25.1	25.1	25.2
Cyprus	23.8	24.3	24.7	25.2	25.5	25.8	25.8	25.9	25.9
Czech Republic	26.7	26.7	26.6	26.4	26.5	26.5	26.5	26.6	26.6
Denmark	23.4	23.7	23.9	24.3	24.6	24.9	25.0	25.1	25.1
Estonia	26.0	25.6	25.2	24.7	24.8	25.1	25.2	25.2	25.3
Finland	25.0	25.0	25.2	25.3	25.4	25.5	25.6	25.6	25.6
France	24.1	24.2	24.4	24.5	24.7	24.8	24.8	24.8	24.8
Georgia	25.8	26.0	26.1	25.5	25.7	26.2	26.3	26.4	26.5
Germany	24.7	24.9	25.1	25.3	25.5	25.6	25.6	25.7	25.7
Greece	24.1	24.3	24.4	24.5	24.7	24.9	24.9	24.9	25.0
Hungary	25.1	25.3	25.5	25.4	25.4	25.7	25.8	25.9	25.9
Iceland	24.1	24.7	24.8	25.0	25.4	25.7	25.8	25.9	26.0
Ireland	24.7	24.9	25.2	25.5	26.0	26.4	26.4	26.5	26.6
Israel	24.4	24.9	25.4	26.0	26.5	27.0	27.1	27.2	27.3
Italy	25.2	25.0	24.9	24.8	24.8	24.8	24.8	24.8	24.8
Kazakhstan	25.3	25.6	25.8	25.8	25.8	26.3	26.5	26.6	26.8
Kyrgyzstan	25.2	25.4	25.6	25.3	25.3	25.5	25.6	25.7	25.8
Latvia	25.6	25.5	25.4	25.1	25.0	25.4	25.5	25.6	25.6
Lithuania	27.0	26.6	26.3	25.7	25.7	26.0	26.0	26.1	26.1
Luxembourg	24.2	24.5	24.8	25.3	25.6	25.9	26.0	26.0	26.1
Malta	25.9	26.0	26.1	26.4	26.8	27.0	27.0	27.0	27.1
Montenegro	26.0	26.0	25.8	25.4	25.4	25.5	25.5	25.6	25.7
Netherlands	24.0	24.1	24.3	24.6	24.8	25.1	25.1	25.2	25.2
Norway	23.7	24.1	24.4	24.7	25.2	25.6	25.6	25.7	25.7
Poland	25.9	25.7	25.6	25.5	25.7	25.8	25.9	25.9	25.9
Portugal	24.8	24.8	25.2	25.6	25.9	26.1	26.2	26.2	26.2
Republic of Moldova	27.0	27.0	27.0	26.7	26.4	26.7	26.9	27.0	27.0
Romania	25.4	25.4	25.3	25.0	24.9	25.1	25.2	25.2	25.3
Russian Federation	26.8	26.7	26.6	26.4	26.5	26.9	27.0	27.1	27.2
Serbia	26.1	26.1	25.9	25.4	25.2	25.2	25.3	25.3	25.4
Slovakia	26.1	26.2	26.2	26.0	26.1	26.2	26.2	26.3	26.3
Slovenia	26.4	26.4	26.3	26.2	26.3	26.5	26.5	26.6	26.6
Spain	25.1	25.2	25.5	25.7	26.0	26.2	26.3	26.3	26.3
Sweden	24.4	24.5	24.6	24.8	24.9	25.1	25.1	25.1	25.2
Switzerland	23.7	23.8	23.9	24.0	24.0	24.1	24.1	24.1	24.1
Tajikistan	24.3	24.4	24.4	23.8	23.4	23.6	23.7	23.8	23.9
TFYR Macedonia	25.4	25.4	25.3	25.1	25.1	25.2	25.3	25.3	25.4
Turkey	26.0	26.5	27.0	27.5	27.8	28.1	28.1	28.2	28.3
Turkmenistan	24.1	24.2	24.3	24.1	24.0	24.4	24.5	24.6	24.7
Ukraine	26.4	26.3	26.3	26.0	25.6	26.0	26.1	26.2	26.3
United Kingdom	24.2	24.6	25.2	25.7	26.2	26.7	26.8	26.9	27.0
Uzbekistan	24.2	24.5	24.7	24.7	24.9	25.2	25.3	25.4	25.5

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>
Notes: Age standardized estimates.

Figure 10.2a Mean BMI, men aged 20 years and over, 2008, Europe

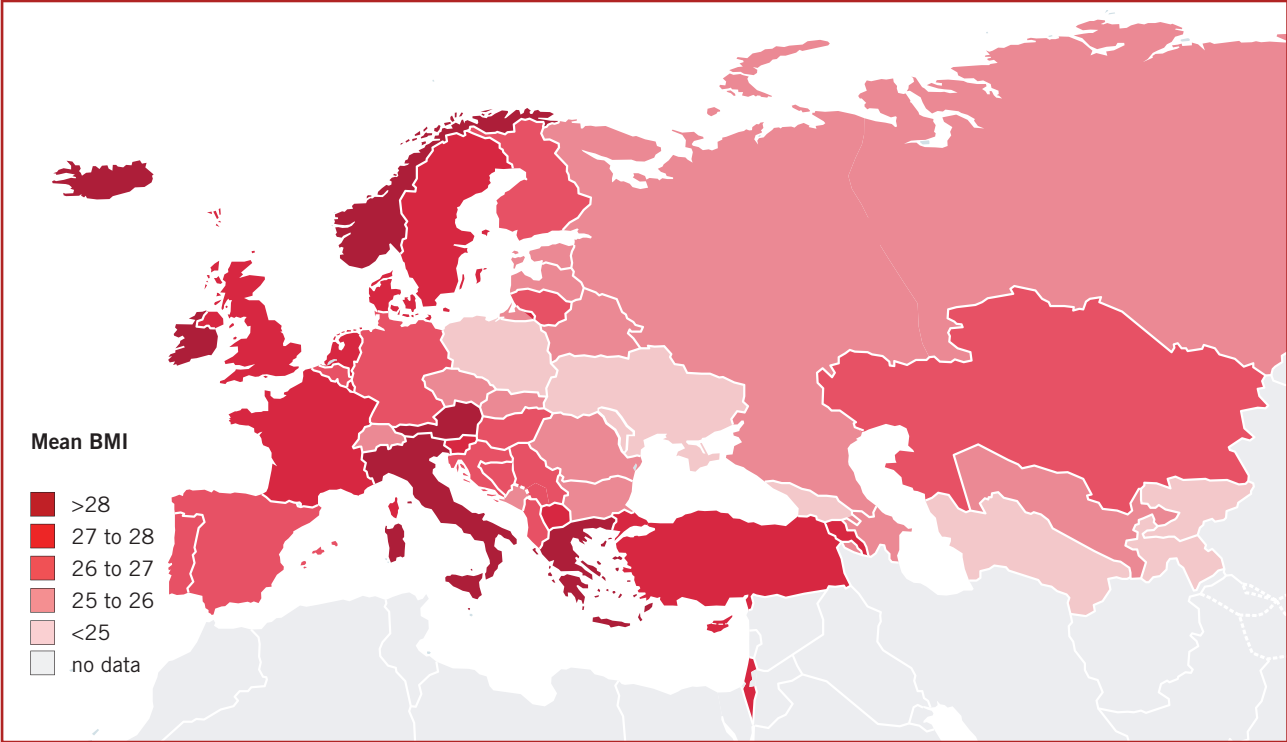


Figure 10.2b Mean BMI, women aged 20 years and over, 2008, Europe

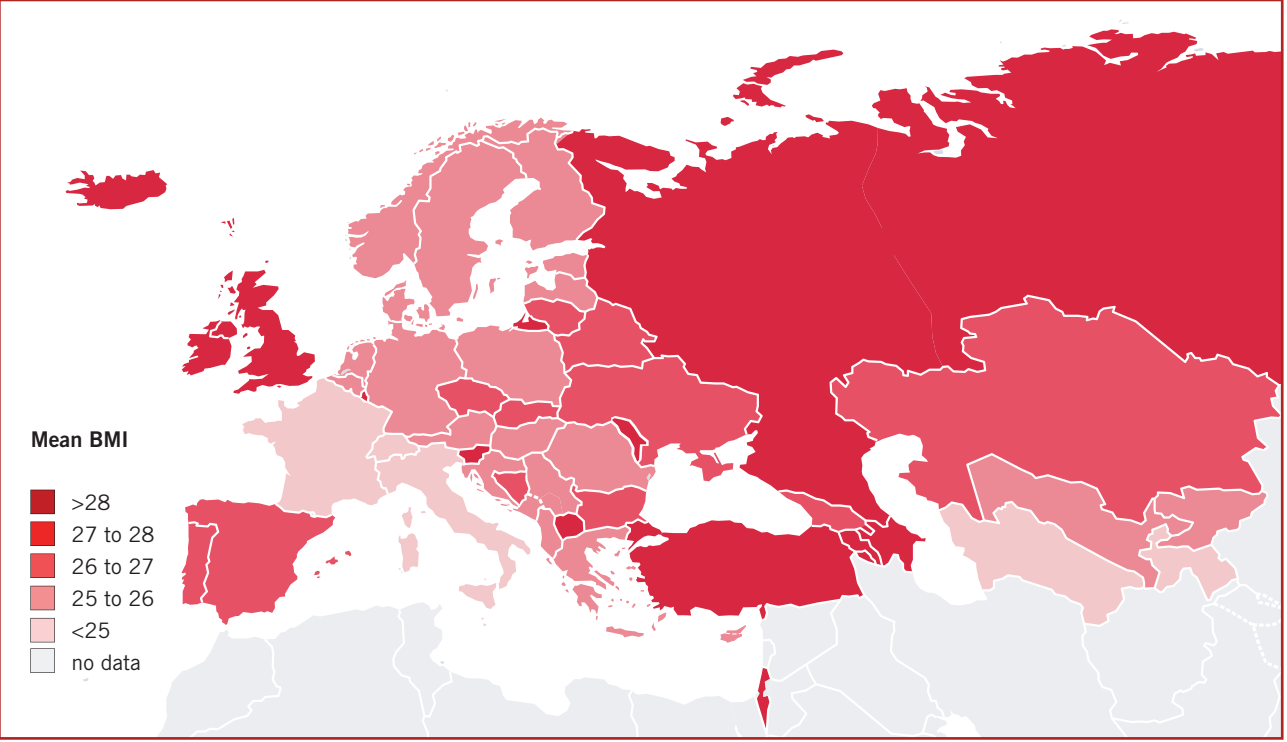


Table 10.3 Prevalence of childhood overweight, by sex, latest available year, Europe

	Year	Age group (years)	Prevalence of overweight including obesity (%)	
			Boys	Girls
Austria	2003	8 to 12	22.5	16.7
Belgium	1998-09	5 to 15	27.3	26.7
Bulgaria	2004	5 to 17	22.0	17.9
Crete	2005-06	10 to 12	45.0	37.0
Cyprus	2003	11	30.2	28.8
Czech Republic	2005	6 to 17	24.6	16.8
Denmark	1996-07	5 to 16	14.1	15.3
England	2009	5 to 17	21.8	26.1
Estonia*	2005-06	11, 13 & 15	12.7	7.0
Finland	2005-06	11, 13 & 15	18.7	13.0
France	2006-07	3 to 17	13.1	14.9
Germany	2008	4 to 16	22.6	17.7
Greece	2003	13 to 17	27.8	16.0
Hungary	2005	7 to 14	25.5	25.9
Iceland	1998	9	22.0	25.5
Italy †	2008	8 to 9	35.9†	35.9†
Latvia*	2005-06	11, 13 & 15	10.0	5.7
Luxembourg*	2005-07	11, 13 & 15	15.0	10.0
Malta*	2005-06	11, 13 & 15	31.0	28.0
Netherlands	2003	5 to 16	14.7	17.9
Northern Ireland	2005	2 to 15	27.0	25.0
Norway	2003-06	5 to 15	12.9	14.7
Poland	2000	7 to 17	16.3	12.4
Portugal	2008	10 to 18	23.5	21.6
Poland	2000	7 to 17	16.3	12.4
Romania*	2005-06	11, 13 & 15	14.7	8.7
Russian Federation	2005	7 to 11	17.3	16.9
Slovakia	2001	7 to 17	17.5	16.2
Slovenia	2007	6 to 17	28.7	24.4
Spain	1999-00	5 to 17	32.9	22.9
Sweden	2000	10	17.0	19.5
Switzerland	2007	6 to 13	16.7	13.1
Turkey	2001	12 to 17	11.3	10.3

Source: IOTF Global Childhood Overweight http://www.iaso.org/site_media/uploads/Global_Childhood_Overweight_May_2012.pdf

Notes: All studies used IOTF definitions for childhood overweight and obesity, except Austria and Belgium, which used 90th and 85th centiles of reference populations.

* indicates self-reported data.

† Italy: study did not provide results by gender, therefore results for all children combined are presented.

11. Diabetes

Diabetes mellitus not only substantially increases the risk of CVD but also magnifies the effect of other risk factors for CVD such as raised cholesterol levels, raised blood pressure, smoking and obesity.

The INTERHEART case-control study estimated that people with diagnosed diabetes are at three times the risk of a heart attack compared to those without¹.

The most recent data from the WHO's European Health for All Database, which compiles data from national diabetes registers, where available, or from routine reporting systems, show diabetes prevalence of less than 1% in six countries: Albania, Greece, Iceland, Tajikistan, Turkmenistan, Uzbekistan and Kyrgyzstan. The highest prevalence rates (>6% of the population) were in Slovakia, Malta, Portugal and the Czech Republic (Table 11.1). Among 25 countries with data available for comparison, 21 showed an increase in diabetes prevalence after 2000 (Table 11.1 and Figure 11.1b). There was an almost doubling in rates (from a low starting prevalence) in Romania, Latvia and Azerbaijan between 2000 and 2009 and a further seven countries showed increases of more than 50% on 2000 prevalence. The most recent estimates of diabetes prevalence show a much higher rate in the EU (4.1%) compared with Europe as a whole (2.8%) (Figure 11.1a).

There is strong evidence, however, that diagnosis rates of diabetes may vary substantially between countries and that the true rate of diabetes is generally much higher than the diagnosed rates of disease. The WHO's estimates of prevalence of raised fasting glucose, an indicator of diabetes risk, show substantially greater proportions of the population at risk (Table 11.2). Seventeen countries had a prevalence of raised fasting glucose of more than one in ten, including many countries with very low rates of diagnosed diabetes. No countries had an estimated prevalence of raised fasting glucose less than 5% of the adult population. Over time, estimates of mean fasting blood glucose levels in European countries have generally showed small increases since 1980 (Table 11.3).

¹ Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004;364(9438):937-52.

Table 11.1 Prevalence of diabetes, adults, 1980 to 2009, Europe

	1980-84	1985-89	1990-94	1995-99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Albania												0.1	0.1	0.1
Armenia	0.6	0.8	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.2	1.3	1.4	1.5
Austria											4.7			
Azerbaijan			0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.8	0.9	1.1	1.2
Belarus			1.2	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.8	1.9	1.9	2.1
Belgium				2.9	3.2	2.8			3.5				3.6	
Bosnia & Herzegovina	0.5	0.6	0.7	1.3	1.2	1.1	1.1	1.2	1.3	1.7	1.6	1.5		1.3
Bulgaria	1.0	1.2	1.2	1.6	1.7									
Czech Republic	3.4	4.1	4.8	5.8	6.4	6.4	6.5	6.7	7.0	7.2	7.3	7.3	7.4	7.5
Denmark			2.4	2.4	2.8	3.0	3.2	3.5	3.8	4.0	4.2	4.4	4.7	
Estonia											2.9			
Finland	1.8	1.9	2.1	2.3	2.6	2.7	2.8	2.9	3.1	3.3	3.4	3.5	3.7	4.0
France			0.6	2.8	3.0									
Georgia			1.0	1.1	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.6
Germany														
Greece	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2			
Hungary		4.4												
Iceland	0.1	0.1		0.2		0.2								
Israel			2.6	3.0	3.2					3.7	3.9	4.1		4.7
Italy				3.7						4.2	4.5	4.6	4.8	4.8
Kazakhstan			0.7	0.6	0.7	0.6	0.8	0.9	0.8	0.9	0.9	1.0	1.2	1.1
Kyrgyzstan	0.2	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	
Latvia		1.1	1.1	1.1	1.5	1.5	1.5	1.7	1.7	2.1	2.3	2.6	2.8	3.0
Lithuania	0.8	0.9	1.0	1.2	1.5	1.5	1.7	2.0	2.1	2.2	1.7	1.8	2.0	2.2
Malta			5.2		6.5	6.6	6.8	7.1	7.6				6.4	
Netherlands		2.0	1.9	2.0				3.8						
Norway		2.9		2.0										
Portugal		6.1		4.8							6.5			
Republic Moldova	0.6	0.9	1.0	0.9	0.9	0.7	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.5
Romania		0.6	0.7	1.1	1.4	1.6	1.8	1.9	2.1	2.2	2.0	2.7	3.0	2.7
Russian Federation		1.0	1.3	1.3	1.4	1.5	1.5	1.6	1.7	1.8	1.9			
Slovakia	2.8	3.3	3.8	4.2	4.7	4.9	5.1	5.2	5.3	5.3	5.5	5.7	5.6	6.2
Slovenia	2.5	2.8	3.4											
Spain								5.0			5.1			
Sweden		3.0		2.9										
Tajikistan			0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3
TFYR Macedonia			1.1	0.8	1.0	1.0	1.1	1.1	1.3	1.3	1.4			
Turkey				1.9										
Turkmenistan			0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ukraine	1.0	1.3	1.7	1.8	1.9	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
United Kingdom										3.5	3.7	3.9	4.1	4.3
Uzbekistan			0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.6

Source: WHO Europe. Health for All Database (HFA-DB) <http://data.euro.who.int/hfad/>

Notes: Where years are given as 5-year ranges, values are the averages of available data for the 5 years.

Blank cells indicate data were not available.

Figure 11.1a Prevalence of diabetes, latest available year, Europe

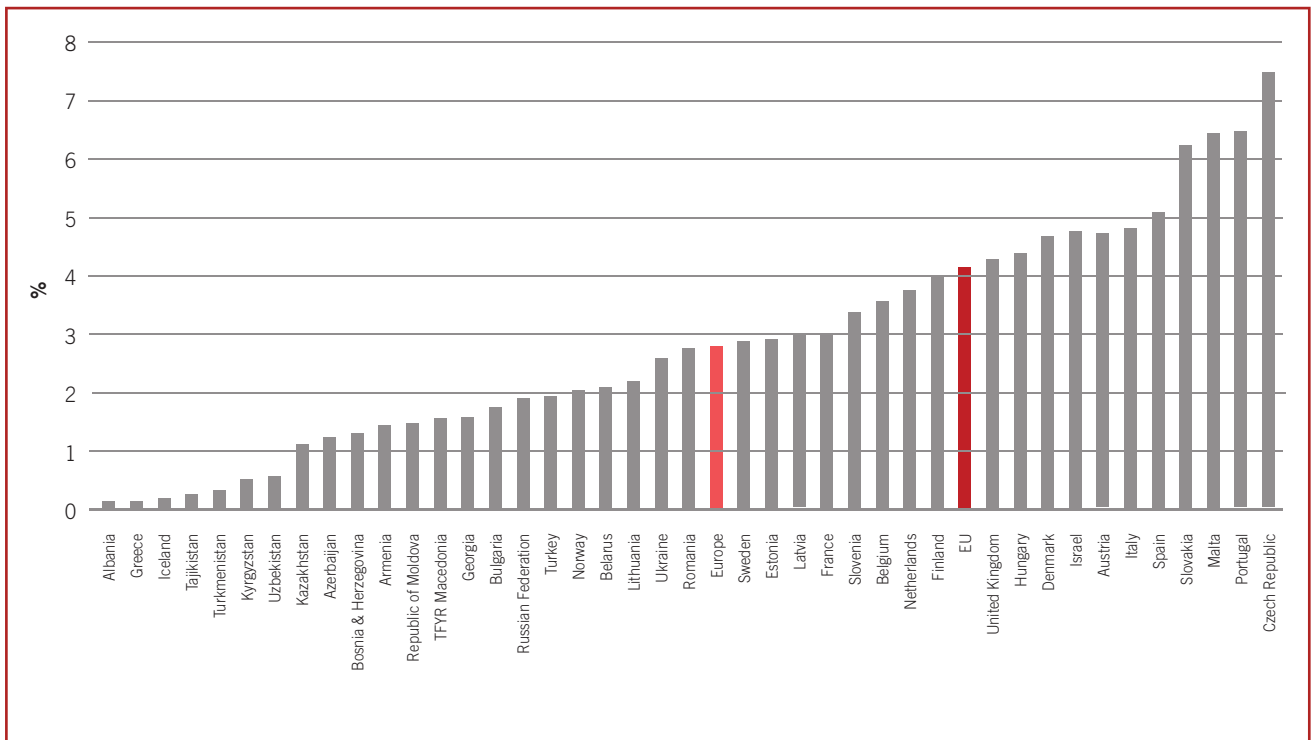


Figure 11.1b Prevalence of diabetes, 1980 to 2009, selected countries

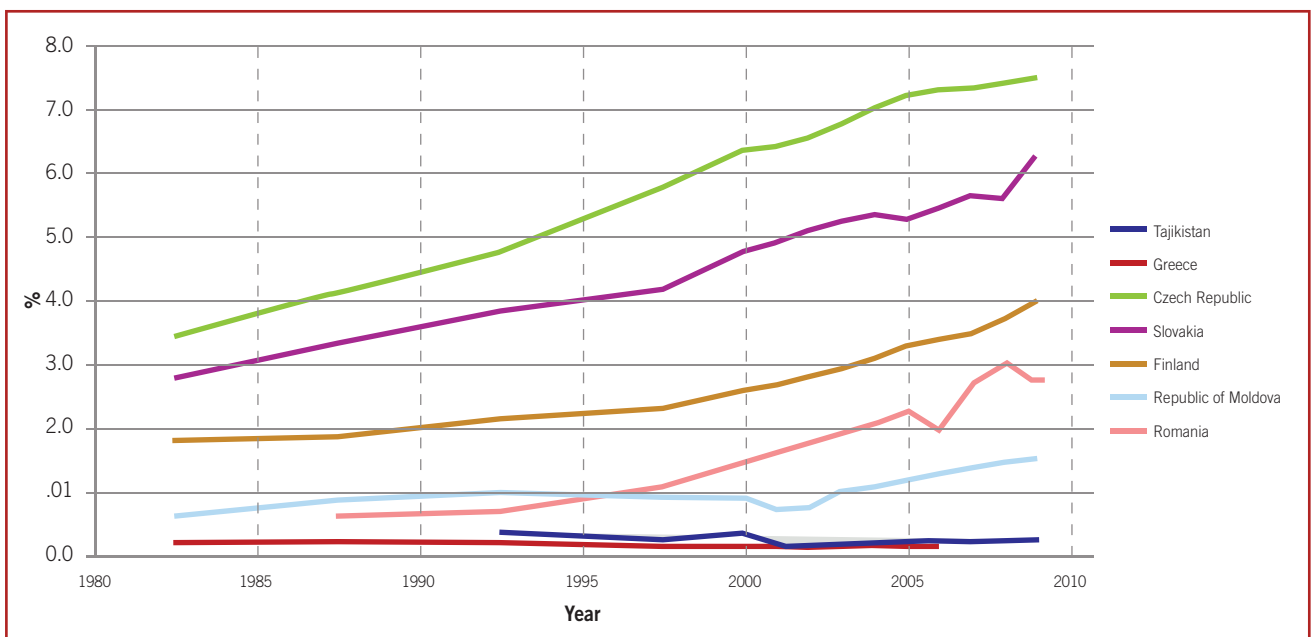


Table 11.2 Prevalence of raised blood glucose, adults aged 25 and over, 2008, Europe

	Age standardized prevalence estimate of raised fasting blood glucose (≥ 7.0 mmol/L or on medication) (%)		
	Males	Females	Total
Netherlands	6.1	4.1	5.1
France	7.2	4.3	5.7
Austria	7.1	4.6	5.8
Portugal	7.5	5.7	6.6
United Kingdom	7.8	5.7	6.7
Ireland	8.4	5.6	7.0
Sweden	8.1	6.0	7.0
Italy	8.8	5.4	7.1
Switzerland	9.3	5.3	7.2
Denmark	8.8	5.9	7.3
Poland	8.2	6.9	7.6
Belgium	9.3	6.4	7.8
Germany	9.8	6.3	8.0
Finland	10.3	6.3	8.1
Luxembourg	9.9	6.7	8.3
Cyprus	10.2	6.8	8.4
Estonia	9.0	7.8	8.4
Andorra	10.4	7.0	8.6
Greece	9.5	7.9	8.7
Iceland	10.9	6.9	8.9
Montenegro	9.8	8.4	9.1
Norway	10.6	7.7	9.1
Serbia	10.3	8.2	9.2
Croatia	10.2	8.4	9.3
Israel	10.2	8.7	9.4
Romania	10.0	8.9	9.4
Hungary	10.6	8.5	9.5
Albania	10.3	9.0	9.6
TFYR Macedonia	10.4	8.8	9.6
Bulgaria	10.4	8.9	9.7
Latvia	10.4	9.0	9.7
Slovakia	10.6	9.2	9.9
Slovenia	10.7	8.8	9.7
Spain	11.0	8.8	9.9
Turkey	10.1	9.8	10.0
Belarus	10.4	10.0	10.2
Tajikistan	10.7	9.7	10.2
Ukraine	10.2	10.2	10.2
Czech Republic	11.5	9.1	10.3
Lithuania	11.2	9.7	10.4
Malta	11.8	8.9	10.4
Republic of Moldova	9.5	11.1	10.4
Russian Federation	10.5	10.7	10.6
Kyrgyzstan	11.1	10.4	10.7
Bosnia and Herzegovina	11.4	10.4	10.9
Turkmenistan	12.0	10.1	11.0
Armenia	11.5	11.5	11.5
Georgia	11.9	11.1	11.5
Kazakhstan	12.5	10.8	11.5
Uzbekistan	12.6	10.9	11.7
Azerbaijan	12.1	12.3	12.2

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>

Table 11.3 Trends in mean blood glucose levels, by sex, 1980 to 2008, Europe

Men	Age-standardized estimate of mean fasting blood glucose levels (mmol/L)									
	1980	1985	1990	1995	2000	2005	2006	2007	2008	
Albania	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Andorra	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6	
Armenia	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.7	
Austria	4.9	4.9	5.0	5.1	5.2	5.3	5.4	5.4	5.4	
Azerbaijan	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.7	5.7	
Belarus	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
Belgium	5.3	5.3	5.4	5.4	5.4	5.5	5.5	5.5	5.6	
Bosnia and Herzegovina	5.4	5.5	5.5	5.6	5.7	5.7	5.7	5.7	5.7	
Bulgaria	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Croatia	5.3	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
Cyprus	5.4	5.4	5.4	5.5	5.5	5.6	5.6	5.6	5.6	
Czech Republic	5.3	5.5	5.6	5.6	5.7	5.7	5.7	5.7	5.7	
Denmark	5.3	5.3	5.3	5.4	5.4	5.5	5.5	5.5	5.5	
Estonia	5.3	5.3	5.3	5.2	5.3	5.3	5.3	5.3	5.4	
Finland	5.7	5.7	5.6	5.6	5.6	5.6	5.7	5.7	5.7	
France	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Georgia	5.5	5.6	5.6	5.6	5.6	5.7	5.7	5.7	5.7	
Germany	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	
Greece	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6	
Hungary	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.6	5.6	
Iceland	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.7	
Ireland	5.4	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	
Israel	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.7	5.7	
Italy	5.3	5.3	5.3	5.3	5.4	5.5	5.5	5.6	5.6	
Kazakhstan	5.5	5.5	5.6	5.7	5.7	5.7	5.7	5.8	5.8	
Kyrgyzstan	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	
Latvia	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lithuania	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	5.6	
Luxembourg	5.3	5.3	5.4	5.4	5.5	5.6	5.6	5.6	5.6	
Malta	5.4	5.5	5.5	5.6	5.7	5.7	5.8	5.8	5.8	
Montenegro	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.5	
Netherlands	5.3	5.3	5.3	5.3	5.2	5.3	5.3	5.3	5.3	
Norway	5.4	5.4	5.5	5.5	5.6	5.6	5.6	5.7	5.7	
Poland	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
Portugal	5.3	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	
Republic of Moldova	5.4	5.4	5.4	5.4	5.3	5.4	5.4	5.4	5.4	
Romania	5.3	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
Russian Federation	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
Serbia	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Slovakia	5.4	5.4	5.5	5.5	5.5	5.5	5.6	5.6	5.6	
Slovenia	5.4	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	
Spain	5.1	5.2	5.2	5.4	5.5	5.6	5.7	5.7	5.7	
Sweden	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
Switzerland	5.3	5.3	5.4	5.4	5.5	5.5	5.6	5.6	5.6	
Tajikistan	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	
TFYR Macedonia	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Turkey	5.3	5.4	5.5	5.5	5.6	5.5	5.5	5.5	5.5	
Turkmenistan	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.7	5.7	
Ukraine	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	
United Kingdom	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Uzbekistan	5.6	5.6	5.7	5.7	5.8	5.8	5.8	5.8	5.8	

Table 11.3 continued...

Women	Age-standardized estimate of mean fasting blood glucose levels (mmol/L)								
	1980	1985	1990	1995	2000	2005	2006	2007	2008
Albania	5.3	5.3	5.4	5.3	5.3	5.3	5.3	5.3	5.3
Andorra	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Armenia	5.3	5.4	5.5	5.5	5.6	5.6	5.6	5.6	5.6
Austria	4.8	4.8	4.9	4.9	5.0	5.0	5.1	5.1	5.1
Azerbaijan	5.4	5.4	5.5	5.5	5.6	5.7	5.7	5.7	5.7
Belarus	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Belgium	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Bosnia and Herzegovina	5.2	5.3	5.4	5.5	5.6	5.5	5.5	5.5	5.5
Bulgaria	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Croatia	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Cyprus	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3
Czech Republic	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.3	5.3
Denmark	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.2	5.2
Estonia	5.3	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.1
Finland	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
France	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.1	5.1
Georgia	5.3	5.4	5.4	5.4	5.5	5.5	5.6	5.6	5.6
Germany	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Greece	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4
Hungary	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Iceland	5.1	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.3
Ireland	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Israel	5.3	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5
Italy	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Kazakhstan	5.3	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5
Kyrgyzstan	5.3	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.5
Latvia	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Lithuania	5.4	5.4	5.4	5.3	5.4	5.4	5.4	5.4	5.4
Luxembourg	5.0	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.3
Malta	5.3	5.4	5.4	5.4	5.5	5.5	5.5	5.5	5.5
Montenegro	5.2	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Netherlands	5.2	5.1	5.1	5.0	5.0	4.9	4.9	4.9	4.9
Norway	5.1	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4
Poland	5.1	5.2	5.2	5.1	5.1	5.1	5.0	5.0	5.0
Portugal	5.2	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1
Republic of Moldova	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.6	5.6
Romania	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Russian Federation	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	5.5
Serbia	5.2	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.2
Slovakia	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Slovenia	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Spain	5.0	5.0	5.1	5.2	5.3	5.5	5.5	5.5	5.5
Sweden	5.4	5.4	5.4	5.3	5.3	5.2	5.2	5.2	5.2
Switzerland	5.0	5.0	5.1	5.1	5.1	5.2	5.2	5.2	5.2
Tajikistan	5.2	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4
TFYR Macedonia	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Turkey	5.2	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.5
Turkmenistan	5.2	5.2	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Ukraine	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
United Kingdom	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Uzbekistan	5.2	5.3	5.4	5.5	5.5	5.6	5.6	5.6	5.6

Source: WHO Global Health Observatory <http://www.who.int/gho/database/en/>

12. Economic costs

Total costs

CVD has major economic costs as well as human costs for Europe.¹ Overall CVD is estimated to cost the EU economy almost €196 billion a year. Of the total cost of CVD in the EU, around 54% is due to direct health care costs, 24% to productivity losses and 22% to the informal care of people with CVD (Table 12.1).

CHD is estimated to cost the EU economy €60 billion a year: 31% of the overall cost of CVD. Of the total cost of CHD in the EU, around 33% is due to direct health care costs, 29% to productivity losses and 38% to the informal care of people with CHD (Table 12.1).

Stroke is estimated to cost the EU economy over €38 billion a year: around one-fifth of the overall cost of CVD. Of the total cost of stroke in the EU, around 50% is due to direct health care costs, 22% to productivity losses and 29% to the informal care of people with stroke (Table 12.1).

Health care costs

CVD cost the health care systems of the EU just over €106 billion in 2009.² This represents a cost per capita of €212 per annum, around 9% of the total health care expenditure across the EU. The cost of inpatient hospital care for people who have CVD accounted for about 49% of these costs, and that of drugs for about 29% (Table 12.2 and Figure 12.1).

The amount spent on health care for people with CVD varies widely across the EU. Cost per capita varied ten-fold in 2009, from €37 in Romania to €374 in Germany. Percentage of total health care expenditure spent on CVD varied from 4% in Luxembourg to 17% in Estonia, Latvia and Poland (Table 12.2).

Around one-fifth (19%) of health care expenditure on CVD in the EU is due to CHD (Tables 12.2 and 12.3). CHD cost the health care systems of the EU just under €20 billion in 2009. Inpatient hospital care for people who have CHD accounted for 56% of these costs and drugs accounted for 20% (Table 12.3).

Almost one-fifth (18%) of health care expenditure on CVD in the EU is due to stroke (Tables 12.2 and 12.4). Stroke cost the health care systems of the EU €19 billion in 2009. Inpatient hospital care for people who have strokes accounted for about 72% of these costs and drugs accounted for about 7% (Table 12.4).

Non health-care costs

Looking only at the cost of CVD to the health care systems of the EU grossly underestimates the true cost of CVD. 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. Informal care costs are equivalent to the opportunity cost of unpaid care. This opportunity cost is a measure of the amount of money that carers forgo to provide unpaid care for their spouses, friends or relatives suffering from CVD, CHD or stroke.

In 2009, production losses due to mortality and morbidity associated with CVD cost the EU almost €46 billion, with 59% of this cost due to death (€27 billion) and 41% due to illness (€19 billion) in those of working age (Table 12.5).

Just under half (45%) of the production losses due to mortality from CVD and 29% of the cost of production losses due to morbidity were due to CHD. In 2009, production losses due to mortality and morbidity associated with CHD cost the EU €18 billion (Table 12.5).

Stroke accounted for 18% of the production losses due to mortality from CVD and 18% of the cost of production losses due to morbidity. In 2009, production losses due to mortality and morbidity associated with stroke cost the EU €8 billion (Table 12.5).

The cost of informal care for people with CVD in the EU is another important non-health care cost. In 2009, the total cost of providing this care was just under €44 billion. Just over half of these costs were due to CHD (€23 billion) and over one-quarter were due to stroke (€11 billion) (Table 12.5).

This Chapter should be referenced as: Leal J, Luengo-Fernandez R, Gray A. Economic Costs. In: Nichols M, Townsend N, Scarborough P, Rayner M et al. European Cardiovascular Disease Statistics 2012. European Heart Network, Brussels, European Society of Cardiology, Sophia Antipolis.

- 1 The figures for this section are from a new cost of illness study by researchers at the Health Economics Research Centre, Department of Public Health, University of Oxford. The analysis was carried out for the year 2009, and costs calculated for individual Member States and the EU as a whole.*
- 2 Due to lack of data across the EU, this figure does not include the money spent on non-clinical activities concerned with the primary prevention of CVD, for example, public anti-smoking campaigns, nutrition education etc. However, the cost of drugs prescribed in primary care for both primary and secondary prevention are included.*

Table 12.1 Total cost of CVD, CHD and cerebrovascular diseases, 2009, EU

	CVD		CHD		Cerebrovascular disease	
	€ thousands	% of total	€ thousands	% of total	€ thousands	% of total
Direct health care costs	106,156,940	54%	19,867,875	33%	19,102,868	50%
Productivity loss due to mortality	26,963,326	14%	12,014,249	20%	4,812,409	13%
Productivity loss due to morbidity	18,873,665	10%	5,530,552	9%	3,329,282	9%
Informal care costs	43,560,202	22%	22,812,144	38%	11,115,782	29%
Total	195,554,133		60,224,820		38,360,340	

Table 12.2 Health care costs of CVD (€ thousands) by country, 2009, EU

Country	Primary care	Outpatient care	A&E	Inpatient care	Medications	Total health care costs	Cost per capita	Percentage of total health care expenditure
Austria	€ 54,246	€ 87,906	€ 36,341	€ 1,510,046	€ 650,078	€ 2,338,617	€ 280	8%
Belgium	€ 177,452	€ 57,286	€ 9,007	€ 1,232,872	€ 898,200	€ 2,374,817	€ 221	6%
Bulgaria	€ 24,959	€ 29,616	€ 7,432	€ 107,855	€ 178,015	€ 347,877	€ 46	13%
Cyprus	€ 3,210	€ 10,282	€ 2,708	€ 12,425	€ 38,125	€ 66,750	€ 84	7%
Czech Rep.	€ 65,706	€ 148,065	€ 32,699	€ 826,796	€ 494,368	€ 1,567,633	€ 150	14%
Denmark	€ 51,595	€ 58,393	€ 31,313	€ 852,000	€ 251,102	€ 1,244,403	€ 226	5%
Estonia	€ 12,081	€ 22,645	€ 13,395	€ 84,302	€ 34,034	€ 166,457	€ 124	17%
Finland	€ 40,419	€ 63,569	€ 32,805	€ 1,602,803	€ 219,156	€ 1,958,752	€ 368	12%
France	€ 590,209	€ 910,328	€ 99,969	€ 6,927,755	€ 4,203,000	€ 12,731,261	€ 198	6%
Germany	€ 2,450,304	€ 5,832,696	€ 130,517	€ 16,315,575	€ 5,950,067	€ 30,679,159	€ 374	11%
Greece	€ 108,174	€ 241,064	€ 48,125	€ 824,182	€ 1,578,000	€ 2,799,545	€ 249	11%
Hungary	€ 46,043	€ 54,948	€ 8,822	€ 281,589	€ 607,358	€ 998,760	€ 100	14%
Ireland	€ 52,444	€ 49,066	€ 21,005	€ 501,797	€ 301,235	€ 925,547	€ 208	6%
Italy	€ 1,148,231	€ 1,056,688	€ 272,339	€ 6,863,073	€ 5,148,000	€ 14,488,331	€ 241	10%
Latvia	€ 12,356	€ 19,409	€ 6,291	€ 113,328	€ 51,972	€ 203,355	€ 90	17%
Lithuania	€ 27,107	€ 26,682	€ 12,631	€ 87,205	€ 97,288	€ 250,913	€ 75	12%
Luxembourg	€ 7,027	€ 12,399	€ 986	€ 69,429	€ 43,204	€ 133,045	€ 270	4%
Malta	€ 1,777	€ 2,353	€ 995	€ 15,060	€ 28,326	€ 48,511	€ 117	11%
Netherlands	€ 493,132	€ 707,649	€ 31,226	€ 3,458,479	€ 1,107,333	€ 5,797,817	€ 352	8%
Poland	€ 246,162	€ 840,684	€ 34,263	€ 1,687,006	€ 1,349,535	€ 4,157,650	€ 109	17%
Portugal	€ 79,746	€ 70,673	€ 51,046	€ 264,403	€ 749,523	€ 1,215,392	€ 114	6%
Romania	€ 18,230	€ 143,334	€ 6,212	€ 343,317	€ 291,471	€ 802,565	€ 37	12%
Slovakia	€ 65,260	€ 162,234	€ 7,890	€ 178,269	€ 181,200	€ 594,854	€ 110	10%
Slovenia	€ 13,554	€ 11,844	€ 8,242	€ 109,612	€ 120,100	€ 263,352	€ 130	8%
Spain	€ 1,737,135	€ 760,823	€ 464,684	€ 1,812,847	€ 3,160,000	€ 7,935,489	€ 173	8%
Sweden	€ 318,028	€ 540,650	€ 127,274	€ 1,112,638	€ 331,711	€ 2,430,301	€ 263	8%
UK	€ 1,247,279	€ 1,140,361	€ 171,810	€ 4,843,730	€ 2,232,610	€ 9,635,790	€ 156	6%
TOTAL EU	€ 9,091,864	€ 13,061,647	€ 1,670,027	€ 52,038,391	€ 30,295,010	€ 106,156,940	€ 212	9%

Figure 12.2 Percentage of total healthcare expenditure on CVD in the EU, 2009, by resource use category

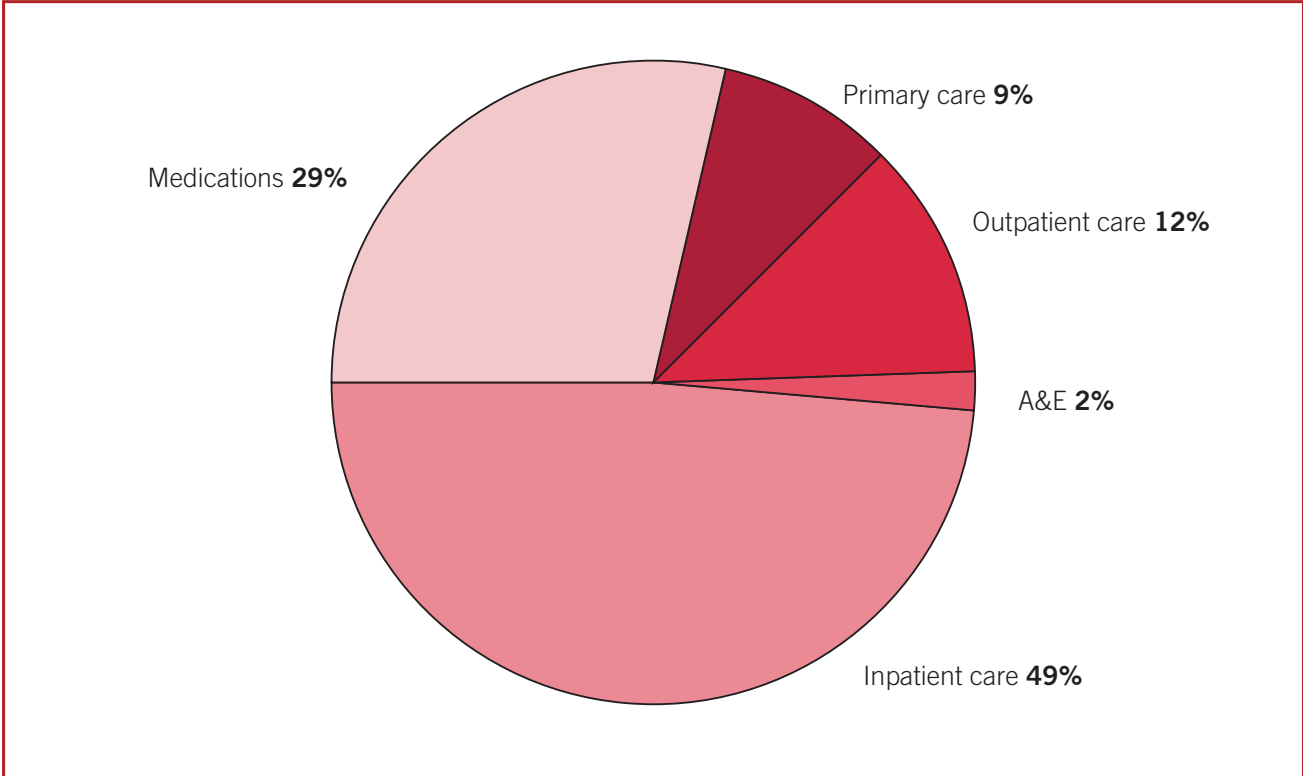


Table 12.3 Health care costs of CHD (€ thousands) by country, 2009, EU

Country	Primary care	Outpatient care	A&E	Inpatient care	Medications	Total health care costs	Cost per capita	Percentage of total health care expenditure
Austria	€ 13,681	€ 22,171	€ 9,166	€ 358,227	€ 86,365	€ 489,609	€ 59	2%
Belgium	€ 53,831	€ 17,378	€ 2,732	€ 302,511	€ 119,329	€ 495,780	€ 46	1%
Bulgaria	€ 5,586	€ 6,628	€ 1,663	€ 18,751	€ 23,650	€ 56,279	€ 7	2%
Cyprus	€ 990	€ 3,172	€ 835	€ 3,694	€ 5,065	€ 13,757	€ 17	1%
Czech Rep.	€ 16,799	€ 37,856	€ 8,360	€ 143,887	€ 65,678	€ 272,581	€ 26	2%
Denmark	€ 15,484	€ 17,524	€ 7,917	€ 197,869	€ 33,360	€ 272,154	€ 49	1%
Estonia	€ 3,454	€ 6,473	€ 3,829	€ 22,433	€ 4,522	€ 40,711	€ 30	4%
Finland	€ 15,475	€ 16,414	€ 8,470	€ 335,313	€ 29,116	€ 404,787	€ 76	3%
France	€ 52,893	€ 81,581	€ 8,959	€ 1,067,922	€ 470,640	€ 1,681,994	€ 26	1%
Germany	€ 312,094	€ 742,906	€ 34,542	€ 3,669,570	€ 654,425	€ 5,413,538	€ 66	2%
Greece	€ 37,525	€ 83,624	€ 16,694	€ 236,781	€ 209,642	€ 584,266	€ 52	2%
Hungary	€ 10,073	€ 12,021	€ 1,930	€ 58,523	€ 80,689	€ 163,236	€ 16	2%
Ireland	€ 16,637	€ 15,565	€ 6,663	€ 118,280	€ 40,020	€ 197,165	€ 44	1%
Italy	€ 280,668	€ 258,292	€ 66,569	€ 1,282,952	€ 683,928	€ 2,572,409	€ 43	2%
Latvia	€ 4,768	€ 7,489	€ 2,427	€ 38,810	€ 6,905	€ 60,399	€ 27	5%
Lithuania	€ 8,302	€ 8,171	€ 3,868	€ 25,145	€ 12,925	€ 58,412	€ 17	3%
Luxembourg	€ 1,960	€ 3,459	€ 275	€ 13,594	€ 5,740	€ 25,029	€ 51	1%
Malta	€ 527	€ 698	€ 295	€ 3,768	€ 3,763	€ 9,051	€ 22	2%
Netherlands	€ 118,045	€ 169,396	€ 7,475	€ 924,795	€ 370,915	€ 1,590,626	€ 96	2%
Poland	€ 72,507	€ 247,623	€ 10,092	€ 414,306	€ 179,290	€ 923,819	€ 24	4%
Portugal	€ 19,007	€ 16,844	€ 12,166	€ 43,670	€ 99,577	€ 191,263	€ 18	1%
Romania	€ 2,318	€ 18,224	€ 790	€ 43,363	€ 38,723	€ 103,417	€ 5	2%
Slovakia	€ 19,754	€ 49,108	€ 2,388	€ 49,364	€ 24,073	€ 144,687	€ 27	3%
Slovenia	€ 2,800	€ 2,446	€ 1,702	€ 18,913	€ 15,956	€ 41,817	€ 21	1%
Spain	€ 398,724	€ 174,632	€ 106,659	€ 362,949	€ 419,816	€ 1,462,780	€ 32	1%
Sweden	€ 99,019	€ 168,333	€ 39,627	€ 249,859	€ 44,069	€ 600,907	€ 65	2%
UK	€ 120,364	€ 399,865	€ 58,518	€ 1,122,043	€ 296,609	€ 1,997,400	€ 32	1%
Total EU	€ 1,703,282	€ 2,587,894	€ 424,615	€ 11,127,295	€ 4,024,789	€ 19,867,875	€ 40	2%

Table 12.4 Health care costs of cerebrovascular diseases (€ thousands) by country, 2009, EU

Country	Primary care	Outpatient care	A&E	Inpatient care	Medications	Total health care costs	Cost per capita	Percentage of total health care expenditure
Austria	€ 7,864	€ 12,745	€ 5,269	€ 389,985	€ 27,851	€ 443,714	€ 53	1%
Belgium	€ 23,484	€ 7,581	€ 1,192	€ 189,615	€ 38,481	€ 260,353	€ 24	1%
Bulgaria	€ 5,063	€ 6,008	€ 1,508	€ 25,246	€ 7,627	€ 45,451	€ 6	2%
Cyprus	€ 602	€ 1,928	€ 508	€ 2,716	€ 1,633	€ 7,387	€ 9	1%
Czech Rep.	€ 12,253	€ 27,611	€ 6,098	€ 283,717	€ 21,180	€ 350,859	€ 34	3%
Denmark	€ 8,174	€ 9,252	€ 5,624	€ 201,556	€ 10,758	€ 235,364	€ 43	1%
Estonia	€ 2,436	€ 4,567	€ 2,701	€ 26,743	€ 1,458	€ 37,906	€ 28	4%
Finland	€ 10,814	€ 12,229	€ 6,311	€ 701,725	€ 9,389	€ 740,468	€ 139	5%
France	€ 43,044	€ 66,390	€ 7,291	€ 1,240,771	€ 172,532	€ 1,530,027	€ 24	1%
Germany	€ 491,658	€ 1,170,342	€ 19,842	€ 4,016,170	€ 264,919	€ 5,962,931	€ 73	2%
Greece	€ 17,943	€ 39,985	€ 7,982	€ 429,643	€ 67,606	€ 563,158	€ 50	2%
Hungary	€ 12,087	€ 14,425	€ 2,316	€ 77,699	€ 26,021	€ 132,548	€ 13	2%
Ireland	€ 7,356	€ 6,882	€ 2,946	€ 30,539	€ 12,906	€ 60,628	€ 14	0%
Italy	€ 218,466	€ 201,049	€ 51,816	€ 2,014,216	€ 220,555	€ 2,706,102	€ 45	2%
Latvia	€ 2,809	€ 4,412	€ 1,430	€ 32,711	€ 2,227	€ 43,589	€ 19	4%
Lithuania	€ 5,438	€ 5,352	€ 2,534	€ 18,335	€ 4,168	€ 35,826	€ 11	2%
Luxembourg	€ 542	€ 957	€ 76	€ 9,315	€ 1,851	€ 12,742	€ 26	0%
Malta	€ 160	€ 212	€ 90	€ 2,004	€ 1,214	€ 3,680	€ 9	1%
Netherlands	€ 67,231	€ 96,478	€ 4,257	€ 1,152,323	€ 44,976	€ 1,365,266	€ 83	2%
Poland	€ 34,680	€ 118,436	€ 4,827	€ 333,710	€ 57,818	€ 549,471	€ 14	2%
Portugal	€ 15,705	€ 13,918	€ 10,053	€ 83,027	€ 32,112	€ 154,814	€ 15	1%
Romania	€ 3,445	€ 27,083	€ 1,174	€ 74,273	€ 12,487	€ 118,462	€ 6	2%
Slovakia	€ 11,666	€ 29,002	€ 1,410	€ 43,133	€ 7,763	€ 92,974	€ 17	2%
Slovenia	€ 1,556	€ 1,360	€ 946	€ 26,615	€ 5,145	€ 35,622	€ 18	1%
Spain	€ 294,340	€ 128,914	€ 78,736	€ 429,299	€ 135,383	€ 1,066,672	€ 23	1%
Sweden	€ 58,694	€ 99,781	€ 23,489	€ 371,646	€ 14,211	€ 567,822	€ 61	2%
UK	€ 44,438	€ 180,121	€ 35,278	€ 1,623,543	€ 95,651	€ 1,979,031	€ 32	1%
Total EU	€ 1,401,949	€ 2,287,019	€ 285,703	€ 13,830,274	€ 1,297,923	€ 19,102,868	€ 38	2%

Table 12.5 Non health-care costs (€ thousands) of CVD , CHD and cerebrovascular diseases by country, 2009, EU

Country	CVD			CHD			Cerebrovascular diseases		
	Production losses due to mortality	Production losses due to morbidity	Informal care	Production losses due to mortality	Production losses due to morbidity	Informal care	Production losses due to mortality	Production losses due to morbidity	Informal care
Austria	€ 442,022	€ 233,822	€ 980,348	€ 234,216	€ 50,799	€ 501,081	€ 74,215	€ 33,761	€ 226,305
Belgium	€ 610,318	€ 776,671	€ 802,999	€ 256,243	€ 201,880	€ 487,018	€ 116,889	€ 151,119	€ 186,695
Bulgaria	€ 209,616	€ 43,427	€ 162,079	€ 52,801	€ 7,550	€ 79,916	€ 44,379	€ 10,165	€ 41,581
Cyprus	€ 511,559	€ 9,083	€ 48,667	€ 34,739	€ 7,670	€ 18,451	€ 5,555	€ 3,073	€ 9,211
Czech Rep.	€ 364,212	€ 276,622	€ 522,289	€ 170,234	€ 41,695	€ 275,098	€ 56,505	€ 21,830	€ 113,095
Denmark	€ 510,395	€ 445,050	€ 225,752	€ 190,882	€ 102,680	€ 125,811	€ 127,713	€ 107,634	€ 81,864
Estonia	€ 81,373	€ 56,546	€ 74,219	€ 31,322	€ 15,076	€ 36,673	€ 12,287	€ 17,990	€ 18,951
Finland	€ 457,302	€ 253,653	€ 209,244	€ 201,652	€ 34,115	€ 45,598	€ 80,758	€ 135,540	€ 70,836
France	€ 2,049,415	€ 2,482,111	€ 3,153,216	€ 690,355	€ 904,073	€ 2,200,702	€ 418,162	€ 456,197	€ 858,606
Germany	€ 7,584,053	€ 5,659,342	€ 14,500,758	€ 3,332,466	€ 1,380,995	€ 7,491,747	€ 1,124,157	€ 693,771	€ 4,120,745
Greece	€ 885,590	€ 149,385	€ 563,646	€ 570,513	€ 97,578	€ 293,502	€ 148,642	€ 177,057	€ 115,323
Hungary	€ 345,178	€ 80,905	€ 491,856	€ 169,274	€ 18,785	€ 245,885	€ 63,068	€ 20,995	€ 127,035
Ireland	€ 388,271	€ 381,287	€ 213,073	€ 227,120	€ 143,465	€ 93,065	€ 62,522	€ 49,634	€ 64,501
Italy	€ 2,097,533	€ 181,741	€ 6,864,506	€ 861,572	€ 43,359	€ 3,468,716	€ 392,183	€ 45,942	€ 1,551,716
Latvia	€ 144,340	€ 33,480	€ 100,459	€ 65,822	€ 9,577	€ 49,170	€ 26,582	€ 8,178	€ 25,419
Lithuania	€ 143,894	€ 66,516	€ 127,149	€ 70,231	€ 18,980	€ 61,958	€ 26,485	€ 16,531	€ 32,000
Luxembourg	€ 31,511	€ 27,131	€ 47,212	€ 13,087	€ 5,954	€ 20,294	€ 5,481	€ 4,401	€ 11,818
Malta	€ 6,429	€ 1,471	€ 18,097	€ 3,770	€ 533	€ 6,864	€ 1,490	€ 246	€ 3,448
Netherlands	€ 1,181,306	€ 2,323,857	€ 1,359,953	€ 441,322	€ 770,506	€ 757,049	€ 210,329	€ 407,466	€ 364,542
Poland	€ 1,416,633	€ 648,536	€ 1,910,185	€ 424,684	€ 181,603	€ 1,320,857	€ 279,825	€ 133,746	€ 588,684
Portugal	€ 532,412	€ 189,725	€ 593,333	€ 177,566	€ 45,219	€ 235,078	€ 200,299	€ 37,363	€ 118,530
Romania	€ 776,777	€ 135,605	€ 522,035	€ 330,163	€ 17,128	€ 251,533	€ 215,070	€ 29,337	€ 129,465
Slovakia	€ 182,335	€ 143,936	€ 237,672	€ 89,291	€ 22,123	€ 111,908	€ 33,356	€ 11,703	€ 56,943
Slovenia	€ 78,569	€ 83,595	€ 206,266	€ 34,599	€ 24,243	€ 102,726	€ 19,476	€ 10,449	€ 53,188
Spain	€ 1,369,038	€ 939,852	€ 4,898,748	€ 588,440	€ 243,536	€ 2,242,211	€ 263,699	€ 210,992	€ 859,550
Sweden	€ 556,789	€ 534,619	€ 511,146	€ 278,335	€ 119,656	€ 374,236	€ 100,903	€ 180,663	€ 167,374
UK	€ 4,466,456	€ 2,715,698	€ 4,215,296	€ 2,473,550	€ 1,021,775	€ 1,915,000	€ 702,379	€ 353,501	€ 1,118,357
Total EU	€ 26,963,326	€ 18,873,665	€ 43,560,202	€ 12,014,249	€ 5,530,552	€ 22,812,144	€ 4,812,409	€ 3,329,282	€ 11,115,782

APPENDIX

Member states of the WHO European Region

	2010 Mid-year male population	2010 Mid-year female population
Albania	1,605,000	1,600,000
Andorra	42,500	42,500
Armenia	1,439,000	1,653,000
Austria	4,096,000	4,298,000
Azerbaijan	4,544,000	4,644,000
Belarus	4,462,000	5,133,000
Belgium	5,251,000	5,462,000
Bosnia Herzegovina	1,807,000	1,953,000
Bulgaria	3,623,000	3,872,000
Croatia	2,120,000	2,284,000
Cyprus	563,000	540,000
Czech Republic	5,147,000	5,346,000
Denmark	2,752,000	2,799,000
Estonia	618,000	723,000
Finland	2,632,000	2,732,000
France	30,549,000	32,239,000
Georgia	2,050,000	2,302,000
Germany	40,341,000	41,962,000
Greece	5,620,000	5,740,000
Hungary	4,740,000	5,244,000
Iceland	161,000	159,000
Ireland	2,236,000	2,233,000
Israel	3,661,000	3,758,000
Italy	29,616,000	30,935,000
Kazakhstan	7,695,000	8,332,000
Kyrgyzstan	2,632,000	2,702,000
Latvia	1,036,000	1,216,000
Lithuania	1,544,000	1,779,000
Luxembourg	252,000	255,000
Malta	207,000	210,000
Monaco	17,500	17,500
Montenegro	310,000	322,000
Netherlands	8,243,000	8,370,000
Norway	2,443,000	2,440,000
Poland	18,467,000	19,810,000
Portugal	5,171,000	5,504,000
Republic of Moldova	1,695,000	1,878,000
Romania	10,434,143	10,997,155
Russian Federation	66,135,000	76,824,000
San Marino	16,000	16,000
Serbia	4,878,000	4,979,000
Slovakia	2,656,000	2,806,000
Slovenia	993,000	1,037,000
Spain	22,748,000	23,329,000
Sweden	4,671,000	4,709,000
Switzerland	3,767,000	3,897,000
Tajikistan	3,385,000	3,494,000
TFYR Macedonia	1,032,000	1,028,000
Turkey	36,285,000	36,467,000
Turkmenistan	2,483,000	2,559,000
Ukraine	20,914,000	24,535,000
United Kingdom	30,516,000	31,520,000
Uzbekistan	13,641,000	13,804,000
European Region	433,866,144	462,414,144
EU	244,722,144	255,667,152

Source: WHO Europe Health for All Database

For Andorra, Monaco and San Marino, only whole population figures were available, data presented here assume equal male and female populations



Note: *Member of the European Union

