Health at a Glance
Europe 2012

OECD

Health at a Glance: Europe 2012

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Foreword

This second edition of Health at a Glance: Europe *presents the most recent key indicators of health and health systems across 35 countries: the 27 European Union member states, five candidate countries and three European Free Trade Association countries. The report comes at a difficult time for European health systems. The economic crisis is increasing poverty, unemployment and stress, all of which are associated with worse health outcomes, yet public and private budgets are under great strain. The report highlights the marked slowdown (sometimes even reduction) in health spending over recent years in many countries, as part of broader efforts to reduce large budgetary deficits. If the report does not yet show any worsening health outcomes due to the crisis, there is no cause for complacency – it takes time for poor social conditions or poor quality care to take its toll from people's health. Policy makers have often done what they could to ensure that access to high quality care remains the norm in Europe; whether this is enough to protect the health of the population will only become clear in years to come.*

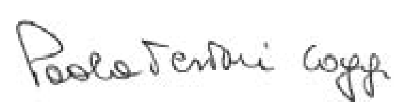
The indicators presented in this report are based largely on the European Community Health Indicators (ECHI), a set of indicators used by the European Commission to guide the development of health information systems in Europe. Additional indicators examine health expenditure trends as well as quality of care, building on OECD expertise in these domains.

The publication at hand reflects the long and fruitful collaboration between the OECD and the European Commission in the development and reporting of health statistics. Since 2005, a joint data collection between the OECD, the European Commission and the World Health Organization has improved the availability of comparable data on health expenditure, based on a common System of Health Accounts. Furthermore, since 2010, these three organisations have gathered additional data on the health workforce as well as on the physical and technical resources required to deliver health services.

The OECD and the European Commission will continue to work closely together to improve the quality and comparability of data to monitor population health and the performance of health systems across European countries.

In the meantime, we hope that this publication will be useful to you and that it will stimulate action to improve the health of European citizens by learning from each others' experience.

Yves Leterme
Deputy Secretary-General
Organisation for Economic Co-operation and Development



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Acknowledgements

This publication would not have been possible without the effort of national data correspondents from the 35 countries who have provided most of the data and the metadata presented in this report. The OECD and the European Commission would like to sincerely thank them for their contribution.

This report was prepared by a team from the OECD Health Division under the co-ordination of Gaétan Lafortune and Michael de Looper. Chapter 1 and Chapter 2 were prepared by Michael de Looper; Chapter 3 by Gaétan Lafortune and Gaëlle Balestat; Chapter 4 by Kees van Gool and Nelly Biondi, under the supervision of Niek Klazinga; and Chapter 5 by Michael Mueller and David Morgan.

A large part of the data presented in this publication come from the two annual data collections on health accounts and non-monetary health care statistics carried out jointly by the OECD, Eurostat and WHO. It is important to recognise the work of colleagues from Eurostat (Elodie Cayotte) and WHO Europe (Ivo Rakovac and Natela Nadareishvili) who have contributed to validating some of the data presented in this publication, to ensure that they meet the highest standards of quality and comparability.

The OECD would also like to recognise the contribution of Mika Gissler, from the National Institute for Health and Welfare in Finland and the leader of the former Joint Action on the European Community Health Indicators Monitoring project, for providing useful guidance and advice on the content of this publication. Thanks also go to Jürgen Thelen from the Robert Koch Institute for assistance with data on adult fruit and vegetable consumption, and Jean-Marie Robine and Carol Jagger (European Joint Action on Healthy Life Years: EHLEIS) for their contribution on the healthy life years indicator.

This publication benefited from comments from Mark Pearson (Head of OECD Health Division). Many useful comments were also received from Stefan Schreck, Boriana Goranova and Fabienne Lefebvre from the European Commission (DG SANCO, Health Information Unit), as well as from officials in other DG SANCO Units.

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Executive summary

European countries have achieved major gains in population health in recent decades. Life expectancy at birth in European Union (EU) member states has increased by more than six years since 1980, to reach 79 years in 2010, while premature mortality has reduced dramatically. Over three-quarters of these years of life can be expected to be lived free of activity limitation. Gains in life expectancy can be explained by improved living and working conditions and some health-related behaviours, but better access to care and quality of care also deserves much credit, as shown, for instance, by sharply reduced mortality rates following a heart attack or stroke.

Many health improvements have come at considerable financial cost. Until 2009, health spending in European countries grew at a faster rate than the rest of the economy, and the health sector absorbed a growing share of the gross domestic product (GDP). Following the onset of the financial and economic crisis in 2008, many European countries reduced health spending as part of broader efforts to reign in large budgetary deficits and growing debt-to-GDP ratios. Although these cuts might have been unavoidable, some measures may have an impact on the fundamental goals of health systems. Continuous monitoring of data and indicators on health and health systems is therefore important; it provides indications of the potential short and longer-term impact of changing economic circumstances and health policies on health care access, quality and health outcomes.

This second edition of *Health at a Glance: Europe* presents the most recent comparable data for selected indicators of health and health systems in 35 European countries – the 27 member states of the European Union, five candidate countries and three EFTA countries – up to 2010. The selection of indicators has been based on the European Community Health Indicators (ECHI) shortlist, a list of indicators that has been developed by the European Commission to guide the development and reporting of health statistics. In addition, the publication provides detailed information on health expenditure and financing trends, using results from the OECD, Eurostat and WHO annual joint health accounts questionnaire. It also includes a new chapter on quality of health care, reflecting the progress achieved under the OECD Health Care Quality Indicators project. The data presented here come mainly from official national statistics, collected individually or jointly by the OECD, Eurostat or WHO-Europe, as well as multi-country surveys such as the Health Behaviour in School-aged Children (HBSC) survey.

Health at a Glance: Europe 2012 presents trends over time and variations across European countries under five broad topics: 1) population health status; 2) risk factors to health; 3) resources and activities of health care systems; 4) quality of care for chronic and acute conditions; and 5) health expenditure and financing sources. It offers some explanation for these variations, providing background for further research and analysis to understand more fully the causes underlying such variations and to develop policy options to reduce gaps with those countries that are achieving better results. Many indicators provide a breakdown by sex and age in each country, and several include a further breakdown by income or education levels. These indicators show that there may be as much variation *within* a country by sub-national regions, socio-economic groups or ethnic/racial groups as there is *across* countries.

Health status has improved dramatically in European countries, although large gaps persist

- Life expectancy at birth in EU member states has increased by over 6 years between 1980 and 2010. On average across the European Union, life expectancy at birth for the three-year period 2008-10 was 75.3 years for men and 81.7 years for women. France had the highest life expectancy for women (85.0 years), and Sweden for men (79.4 years). Life expectancy at birth in the EU was lowest in Bulgaria and Romania for women (77.3 years) and Lithuania for men (67.3 years). The gap between EU member states with the highest and lowest life expectancies at birth is around 8 years for women and 12 years for men (Figure 1.1.1).
- On average across the European Union, healthy life years (HLY) at birth, defined as the number of years of life free of activity limitation, was 62.2 years for women and 61.0 years for men in 2008-10. The gender gap is much smaller than for life expectancy, reflecting the fact that a higher proportion of the life of women is spent with some activity limitations. HLY at birth in 2008-10 was greatest in Malta for women and Sweden for men, and shortest in the Slovak Republic for both women and men (Figure 1.1.1).
- Life expectancy at age 65 has also increased substantially in European countries, averaging 16.5 years for men and 20.1 years for women in the European Union in 2008-10. As for life expectancy at birth, France had the highest life expectancy at age 65 for women (23.2 years) but also for men (18.7 years). Life expectancy at age 65 in the European Union was lowest in Bulgaria for women (16.9 years) and Latvia for men (13.2 years) (Figure 1.2.1).
- Large inequalities in life expectancy persist between socio-economic groups. For both men and women, highly educated persons are likely to live longer; in the Czech Republic for example, 65-year-old men with a high level of education can expect to live seven years longer than men of the same age with a low education level (Figure 1.2.3).
- It is difficult to estimate the relative contribution of the numerous non-medical and medical factors that might affect variations in life expectancy across countries. Higher national income is generally associated with higher (healthy) life expectancy, although the relationship is less pronounced at the highest income levels, suggesting a "diminishing return" (Figure 1.1.2).
- Chronic diseases such as diabetes, asthma and dementia are increasingly prevalent, due either to better diagnosis or more underlying disease. More than 6% of people aged 20-79 years in the European Union, or 30 million people, had diabetes in 2011 (Figure 1.14.1). Better management of chronic diseases has become a health policy priority for many EU member states.

Risk factors to health are changing

- Most European countries have reduced tobacco consumption via public awareness campaigns, advertising bans and increased taxation. The percentage of adults who smoke daily is below 15% in Sweden and Iceland, from over 30% in 1980. At the other end of the scale, over 30% of adults in Greece smoke daily. Smoking rates continue to be high in Bulgaria, Ireland and Latvia (Figure 2.5.1).

- Alcohol consumption has also fallen in many European countries. Curbs on advertising, sales restrictions and taxation have all proven to be effective measures. Traditional wine-producing countries, such as France, Italy and Spain, have seen consumption per capita fall substantially since 1980. Alcohol consumption per adult rose significantly in a number of countries, including Cyprus, Finland and Ireland (Figure 2.6.1).
- In the European Union, 52% of the adult population is now overweight, of which 17% is obese. At the country level, the prevalence of overweight and obesity exceeds 50% in 18 of the 27 EU member states. Rates are much lower in France, Italy and Switzerland, although increasing there as well. The prevalence of obesity – which presents greater health risks than overweight – ranges from 8% in Romania and Switzerland to over 25% in Hungary and the United Kingdom (Figure 2.7.1). The obesity rate has doubled since 1990 in many European countries (Figure 2.7.2). Rising obesity has affected all population groups, to varying extents. Obesity tends to be more common among disadvantaged social groups, and especially women.

The number of doctors and nurses per capita is higher than ever before in most countries, but there are concerns about current or future shortages

- Ensuring proper access to health care is a fundamental policy objective in all EU member states. It requires, among other things, having the right number of health care providers in the right places to respond to the population's needs. There are concerns in many European countries about shortages of doctors and nurses, although recent public spending cuts on health in some countries may have led to at least a temporary reduction in demand.
- Since 2000, the number of doctors per capita has increased in almost all EU member states. On average across the European Union, the number of doctors grew from 2.9 per 1 000 population in 2000 to 3.4 in 2010. Growth was particularly rapid in Greece and the United Kingdom (Figure 3.1.1).
- In nearly all countries, the balance between generalist and specialist doctors has changed such that there are now more specialists (Figure 3.1.2). This may be explained by a reduced interest in traditional "family medicine" practice, combined with a growing remuneration gap between generalists and specialists. The slow growth or reduction in the number of generalists raises concerns in many countries about access to primary care for certain population groups.
- There are also concerns about possible shortages of nurses, and this may well intensify in the future as the demand for nurses continues to increase and the ageing of the "baby boom" generation precipitates a wave of retirements among nurses. Over the past decade, the number of nurses per capita has increased in nearly all EU member states (Figure 3.3.1). The increase was particularly large in Demark, France, Portugal and Spain. However, recently there has been a reduction in nurses employed in some countries hardest hit by the economic crisis. In Estonia, the number of nurses increased to 2008, but has decreased since then, with a resulting fall from 6.4 per 1 000 population in 2008 to 6.1 in 2010.

Quality of care has improved in most European countries, though all countries can do better, particularly to avoid hospital admissions for people with chronic diseases

- There has been progress in the treatment of life-threatening conditions such as heart attack, stroke and cancer in all reporting European countries. Mortality rates following hospital admissions for heart attack (acute myocardial infarction) have fallen by nearly 50% between 2000 and 2009 (Figure 4.3.3) and for stroke by over 20% (Figure 4.4.3). These improvements reflect better acute care and greater access to dedicated stroke units in countries like Denmark and Sweden.
- Survival rates for different types of cancer have also improved in most countries, reflecting earlier detection and greater treatment effectiveness (Figures 4.7.2 and 4.8.2). While survival rates for breast cancer remain below 80% in the Czech Republic and Slovenia, they have increased by over 10 percentage points between 1997-2002 and 2004-09. These two countries also witnessed substantial gains in survival rates for colorectal cancer (Figure 4.9.2).
- It is more difficult to monitor quality of care in the primary care sector, as in most countries there are fewer data than in the hospital sector. Avoidable hospital admission is often used as an indicator of either access problems to primary care or the quality and continuity of care. There is general consensus that asthma and diabetes should largely be managed through proper primary care interventions to avoid exacerbation and costly hospitalisation. While hospital admissions for asthma are low in certain countries, they are much higher in others, such as the Slovak Republic (Figure 4.1.1). In all European countries, there are too many hospital admissions for uncontrolled diabetes (Figure 4.2.1).

Growth in health expenditure has slowed or fallen in many European countries

- Growth in health spending per capita slowed or fell in real terms in 2010 in almost all European countries, reversing a trend of steady increases. Spending had already started to fall in 2009 in countries hardest hit by the economic crisis (*e.g.* Estonia and Iceland), but this was followed by deeper cuts in 2010 in response to growing budgetary pressures and rising debt-to-GDP ratios. On average across the EU, health spending per capita increased by 4.6% per year in real terms between 2000 and 2009, followed by a fall of 0.6% in 2010 (Figure 5.2.2).
- Reductions in public spending on health were achieved through a range of measures, including reductions in wages and/or employment levels, increasing direct payments by households for certain services and pharmaceuticals, and imposing severe budget constraints on hospitals. Gains in efficiency have also been pursued through mergers of hospitals or accelerating the move from inpatient care to outpatient care and day surgery.
- As a result of the negative growth in health spending in 2010, the percentage of GDP devoted to health stabilised or declined slightly in many EU member states. In 2010, EU member states devoted on average 9.0% (unweighted) of their GDP to health spending (Figure 5.3.1), up significantly from 7.3% in 2000, but down slightly from the peak of 9.2% in 2009.
- The Netherlands allocated the highest share of GDP to health in 2010 (12%), followed by France and Germany (both at 11.6%). In terms of health spending per capita, the Netherlands (EUR 3 890), Luxembourg (EUR 3 607) and Denmark (EUR 3 439) were the

highest spenders among EU member states. Austria, France and Germany followed, at over EUR 3 000 per capita. Bulgaria and Romania were the lowest spending countries, at around EUR 700.

- The public sector is the main source of health care financing in all European countries, except Cyprus (Figure 5.6.1). In 2010, nearly three-quarter (73%) of all health spending was publicly financed on average in EU member states. Public financing accounted for over 80% in the Netherlands, the Nordic countries (except Finland), Luxembourg, the Czech Republic, the United Kingdom and Romania. The share was the lowest in Cyprus (43%), and Bulgaria, Greece and Latvia (55-60%).
- The economic crisis has affected the mix of public and private health financing in some countries. Public spending has been cut for certain goods and services, often combined with increases in the share of direct payments by households. In Ireland, the share of public financing of health spending decreased by nearly 6 percentage points between 2008 and 2010, and stands now at 70%, while the share of out-of-pocket payments by households increased. There have also been substantial falls in Bulgaria and the Slovak Republic.
- After public financing, the main source of funding for health expenditure in most countries is out-of-pocket payments. Private health insurance financing only plays a significant role in a few countries. In 2010, the share of out-of-pocket payments was highest in Cyprus (49%), Bulgaria (43%) and Greece (38%). It was the lowest in the Netherlands (6%), France (7%) and the United Kingdom (9%). Its share has increased over the past decade in about half of EU member states, most notably in Bulgaria, Cyprus, Malta and the Slovak Republic (Figure 5.6.3).
- The economic crisis and growing budgetary constraints have put additional pressures on health systems in many European countries. Several countries that have been hardest hit by the crisis have taken a series of measures to reduce public spending on health. It will be important to monitor closely the short and longer-term impact of these measures on the fundamental goals of health systems in European countries of ensuring proper access and quality of care.

Introduction

Health at a Glance: Europe 2012 presents key indicators of health and health systems in 35 European countries, including the 27 European Union member states, 5 candidate countries and 3 European Free Trade Association countries. The selection of indicators is based largely on the European Community Health Indicators (ECHI) shortlist, a set of indicators that has been developed to guide the reporting of health statistics in the European Union (ECHIM, 2012). It is complemented by additional indicators on health expenditure and quality of care in the related chapters.

The first edition of this report was released in 2010. This second edition includes a larger number of ECHI indicators (notably in the first chapter on health status and in the chapter on health care resources and activities), reflecting progress in data availability and comparability. There is also a new chapter on quality of care combining certain ECHI indicators with selected indicators on quality of care and patient safety developed under the OECD Health Care Quality Indicators project (OECD, 2010c).

The data presented in this publication are mostly official national statistics and have been collected through questionnaires administered by the OECD, Eurostat and WHO. The data have been validated by the three organisations to ensure that they meet standards of data quality and comparability. In certain cases, the data come from regular cross-national surveys, such as the Health Behaviour in School-aged Children surveys for the set of indicators on health risk factors among children. All indicators are presented in the form of easy-to-read figures and explanatory text, based on a two-page format per indicator.

Structure of the publication

The publication is structured around five chapters:

- Chapter 1 on *Health status* highlights the variations across countries in life expectancy and healthy life expectancy, and also presents other indicators of causes of mortality and morbidity, including both communicable and non-communicable diseases.
- Chapter 2 on *Determinants of health* focuses on non-medical determinants of health related to modifiable lifestyles and behaviours among children and adults, such as smoking and alcohol drinking, nutrition, physical activity, and overweight and obesity.
- Chapter 3 on *Health care resources and activities* reviews some of the inputs and outputs of health care systems, including the supply of doctors and nurses, different types of equipment used for diagnosis or treatment, and the provision of a range of services to prevent the transmission of communicable diseases or to treat acute conditions.
- Chapter 4 is a new chapter on *Quality of care*, providing comparisons on care for chronic and acute conditions, cancers and communicable diseases. The chapter also includes a set of indicators on patient safety, building on the developmental work and data collection carried out under the OECD Health Care Quality Indicators project.

- Chapter 5 on *Health expenditure and financing* examines trends in health spending across European countries, both overall and for different types of health services and goods, including pharmaceuticals. It also looks at how these health services and goods are paid for and the different mix between public funding, private health insurance, and direct out-of-pocket payments by households.

An annex provides some additional tables on the demographic and economic context within which different health systems operate, as well as additional data on health expenditure trends.

Presentation of indicators

Each of the topics covered in this publication is presented over two pages. The first provides a brief commentary highlighting the key findings conveyed by the data, defines the indicator(s) and discusses any significant national variations from that definition which might affect data comparability. On the facing page is a set of figures. These typically show current levels of the indicator and, where possible, trends over time. In some cases, an additional figure relating the indicator to another variable is included.

The average in the figures includes only European Union (EU) member states, and is calculated as the *unweighted average* of those EU member states presented (up to 27, if there is full data coverage). Some weighted averages are also presented in the tables on health expenditure and GDP in the annex.

Data and limitations

Limitations in data comparability are indicated both in the text (in the box related to "Definition and comparability") as well as in footnotes to charts.

Readers interested in using the data presented in this publication for further analysis and research are encouraged to consult the full documentation of definitions, sources and methods contained in *OECD Health Data 2012* for all OECD member countries, including 21 EU member states and 4 additional countries (Iceland, Norway, Switzerland and Turkey). This information is available on OECD.Stat (*http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT*).

For ten other countries (Bulgaria, Croatia, Cyprus, Former Yugoslav Republic of Macedonia, Latvia, Lithuania, Malta, Montenegro, Romania and Serbia), readers should consult the Eurostat database for more information on sources and methods: *http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database*.

Readers interested in an interactive presentation of the ECHI indicators can also consult the DG SANCO HEIDI data tool at: *http://ec.europa.eu/health/indicators/indicators/index_en.htm*.

Population figures

The population figures for all EU member states and candidate countries presented in the annex and used to calculate rates per capita in this publication come from the Eurostat demographics database. The data were extracted in June 2012, and relate to mid-year estimates (calculated as the average between the beginning and end of year population figures). Population estimates are subject to revision, so they may differ from the latest population figures released by Eurostat or national statistical offices.

Some member states such as France and the United Kingdom have overseas colonies, protectorates and territories. These populations are generally excluded. However, the calculation of GDP per capita and other economic measures may be based on a different population in these countries, depending on the data coverage.

Country codes (ISO codes)

Austria	AUT	Lithuania	LTU
Belgium	BEL	Luxembourg	LUX
Bulgaria	BGR	Malta	MLT
Croatia	HRV	Montenegro	MNE
Cyprus[1]	CYP	Netherlands	NLD
Czech Republic	CZE	Norway	NOR
Denmark	DNK	Poland	POL
Estonia	EST	Portugal	PRT
Finland	FIN	Romania	ROU
France	FRA	Serbia	SRB
FYR of Macedonia	MKD	Slovenia	SVN
Germany	DEU	Slovak Republic	SVK
Greece	GRC	Spain	ESP
Hungary	HUN	Sweden	SWE
Iceland	ISL	Switzerland	CHE
Ireland	IRL	Turkey	TUR
Italy	ITA	United Kingdom	GBR
Latvia	LVA		

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Chapter 1

Health status

Life expectancy at birth continues to increase in European countries, reflecting reductions in mortality rates at all ages. These gains in longevity can be attributed to a number of factors, including rising living standards, improved lifestyle and better education, as well as greater access to quality health services. Better nutrition, sanitation and housing also play a role, particularly in countries with developing economies (OECD, 2011b).

Average life expectancy at birth for 2008-10 across the 27 member states of the European Union reached 75.3 years for men and 81.7 years for women (Figure 1.1.1), a rise of 2.7 and 2.3 years respectively over the decade from 1998-2010. In more than two-thirds of EU member states, life expectancy exceeded 80 years for women and 75 years for men. France had the highest life expectancy at birth for women in 2008-10 (85.0 years), and Sweden for men (79.4 years). Life expectancy was lowest in Bulgaria and Romania for women (77.3 years) and in Lithuania for men (67.3 years). The gap between EU member states with the highest and lowest life expectancies is around eight years for women and 12 years for men.

The gender gap in life expectancy at birth in 2008-10 stood at 6.4 years, around half a year less than a decade earlier. However, this hides a large range among countries, with the smallest gap in Sweden, the Netherlands and the United Kingdom, along with Iceland (about four years) and the largest in Lithuania (over 11 years). The recent narrowing of this gap in most countries can be attributed at least partly to the narrowing of differences in risk-increasing behaviours between men and women, such as smoking, accompanied by sharp reductions in mortality rates from cardiovascular diseases among men.

Looking ahead, Eurostat projects that life expectancy will continue to increase in the European Union in coming decades, to reach 84.6 years for males and 89.1 for females in 2060. Convergence among countries is expected to continue, with the largest increases in life expectancy to take place in those countries with the lowest life expectancy in 2010 (EC, 2012a).

In a context of increasing life expectancy and population ageing, healthy life years (HLY) has been endorsed as an important European policy indicator to address whether years of longer life are lived in good health (Joint Action: EHLEIS, 2012). The current leading indicator of HLY is a measure of disability-free life expectancy which indicates how long people can expect to live without disability. On average for EU member states, HLY at birth in 2008-10 was 62.2 years for women and 61.0 years for men. It was greatest in Malta for women, and in Sweden for men, and shortest in the Slovak Republic for both men and women (Figure 1.1.1). Women in Malta can expect to live 86% of life expectancy without limitations in usual activities. For men in Sweden, the value is even higher at 89%. In the Slovak Republic, only 66% of female and 73% of male life expectancy is free from activity limitation.

The spread of values for HLY at birth among EU member states are much greater than for life expectancy, being 19 years for women and 18 years for men. Since the HLY indicator has only recently been developed, there is as yet no long time series. In contrast to the 6.4 year gap in life expectancy at birth for EU member states on average, the gender gap in HLY at birth was only around 1.2 years in 2008-10. For life expectancy at birth the gender gap has always favoured women. However, seven countries had a gender gap in HLY which favoured men, the greatest being 2.0 more HLY for men in Portugal. Of the remaining countries, Lithuania had the largest gender gap in HLY favouring women. The European Innovation Partnership on Active and Healthy Ageing, part of the Europe 2020 initiative, has set an objective of increasing the average number of healthy life years by two, by 2020 (EC, 2011b).

A wide range of factors affect life expectancy and HLY. Higher national income (as measured by GDP per capita) is generally associated with higher life expectancy at birth and also with HLY, although the relationship is less pronounced at higher levels of national income (Figure 1.1.2). Similarly, Figure 1.1.3 shows that higher health spending per capita tends to be associated with higher HLY, although there is much variation for a given level of health spending, confirming that many other factors play a role in determining the number of healthy life years.

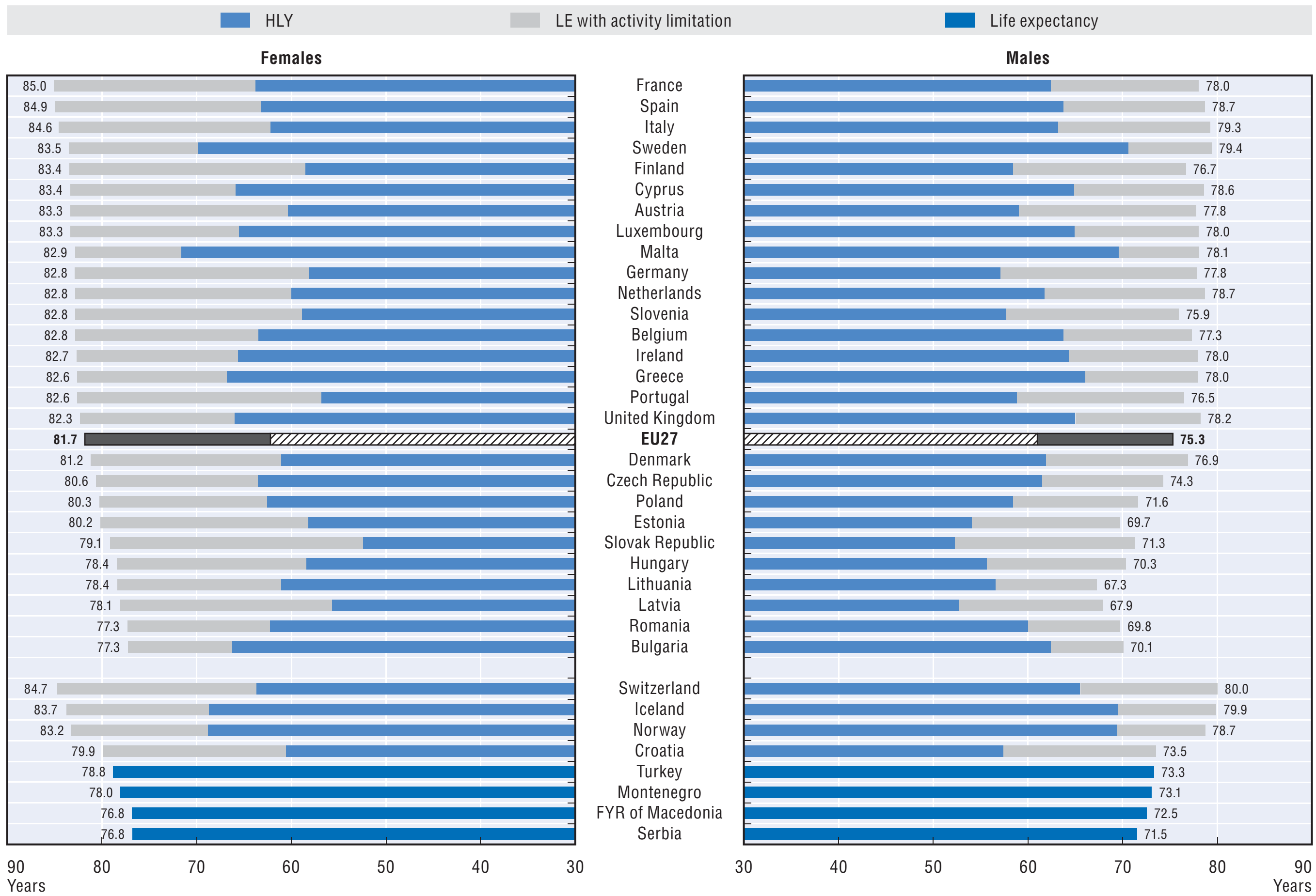
Definition and comparability

Life expectancy measures how long, on average, people would live based on a given set of age-specific death rates. However, the actual age-specific death rates of any particular birth cohort cannot be known in advance. If age-specific death rates are falling (as has been the case over the past decades), actual life spans will, on average, be higher than life expectancy calculated with current death rates.

Healthy life years (HLY) are the number of years spent free of activity limitation, being equivalent to disability-free life expectancy. HLY are calculated annually by Eurostat and EHLEIS for each EU country using the Sullivan (1971) method. The underlying health measure is the Global Activity Limitation Indicator (GALI), which measures limitation in usual activities, and comes from the European Union Statistics on Income and Living Conditions (EU-SILC) survey.

Comparing trends in HLY and life expectancy can show whether extra years of life are healthy years. However, valid comparisons depend on the underlying health measure being truly comparable. While HLY is the most comparable indicator to date, there are still problems with translation of the GALI question, although it does appear to satisfactorily reflect other health and disability measures (Jagger *et al.*, 2010).

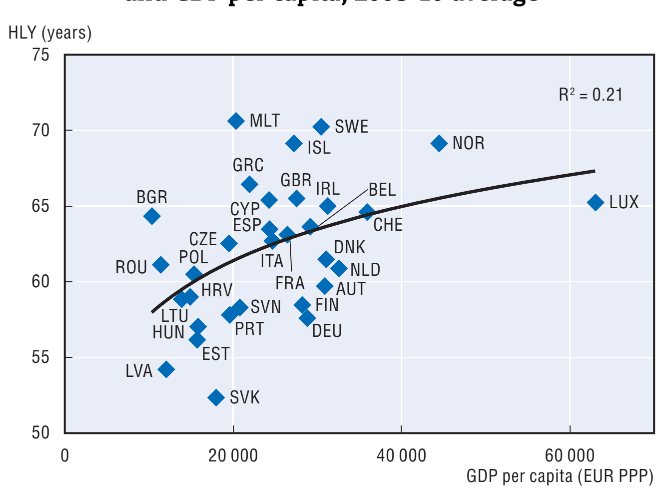
1.1.1. Life expectancy (LE) and healthy life years (HLY) at birth, by gender, 2008-10 average



Source: *Eurostat Statistics Database*; Joint Action: EHLEIS (2012).

StatLink http://dx.doi.org/10.1787/888932702879

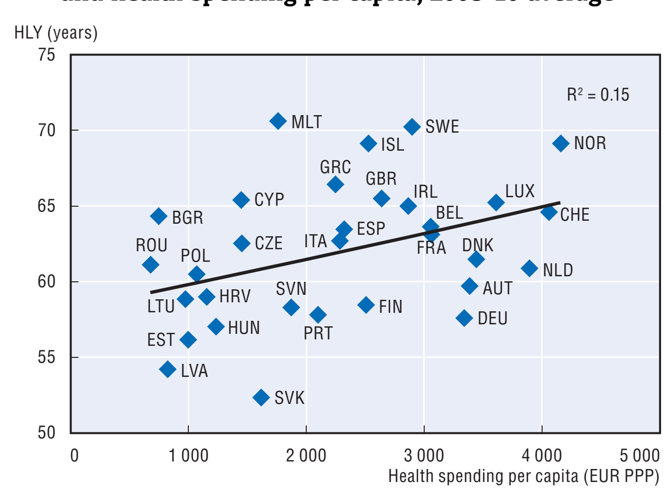
1.1.2. Healthy life years (HLY) at birth and GDP per capita, 2008-10 average



Source: *Eurostat Statistics Database*; *OECD Health Data 2012*; *WHO Global Health Expenditure Database*.

StatLink http://dx.doi.org/10.1787/888932702898

1.1.3. Healthy life years (HLY) at birth and health spending per capita, 2008-10 average



Source: *Eurostat Statistics Database*; *OECD Health Data 2012*; *WHO Global Health Expenditure Database*.

StatLink http://dx.doi.org/10.1787/888932702917

Life expectancy at age 65 has increased significantly among both women and men over the past several decades in all EU member states. Some of the factors explaining the gains in life expectancy at age 65 include advances in medical care, greater access to health care, healthier lifestyles and improved living conditions before and after people reach age 65.

The average life expectancy at age 65 in 2008-10 for the 27 member states of the European Union was 16.5 years for men and 20.1 years for women (Figure 1.2.1). As for life expectancy at birth, France had the highest life expectancy at age 65 for women (23.2 years), but also for men (18.7 years). Among other countries, life expectancy at 65 was highest in Switzerland for both men and women. Life expectancy at age 65 in the European Union was lowest in Latvia for men (13.2 years) and in Bulgaria for women (16.9 years).

The average gender gap in life expectancy at age 65 in 2008-10 stood at 3.6 years, unchanged since 1998-2000. Greece had the smallest gender gap of 2 years and Estonia the largest at 5.2 years.

Gains in longevity at older ages in recent decades, combined with the trend reduction in fertility rates are contributing to a steady rise in the proportion of older persons (see Annex Table A.2). Whether longer life expectancy is accompanied by good health and functional status among ageing populations has important implications for health and long-term care systems.

Healthy life years (HLY) at age 65 in 2008-10 for EU member states was similar for men and women, being 8.4 years for men and 8.6 years for women. HLY at age 65 in 2008-10 was greatest in Sweden and shortest in the Slovak Republic for both men and women (Figure 1.2.1). HLY is based on the Global Activity Limitation (GALI) question, which is one of three indicators included in the Minimum European Health Module along with global items on self-perceived health and chronic morbidity. Since the HLY indicator has only been developed relatively recently, there is as yet no long time series.

The relationship between life expectancy and HLY at age 65 is not clear-cut (Figure 1.2.2). Higher life expectancy at age 65 is generally associated with higher HLY, although longer life expectancy at age 65 does not necessarily imply more HLY. Central and Eastern European countries have both lower life expectancy and HLY than other European countries.

Life expectancy at age 65 years also varies by educational status (Figure 1.2.3). For both men and women, highly educated people are likely to live longer (Corsini, 2010). Again, differences in life expectancy are particularly large in Central and Eastern European countries, and are more pronounced for men. In the Czech Republic, 65-year-old men with a high level of education can expect to live seven years longer than those with a low education level. Not only is education a general measure of socio-economic status, it can also provide the means to improve the social and economic conditions in which people live and work.

A recent study showed that higher educational levels are not only associated with higher life expectancy but also with higher disability-free life expectancy at age 65 in ten EU member states. For both men and women, differences were larger for disability-free life expectancy than life expectancy (Majer *et al.*, 2011).

In several European countries, occupation is used as a measure of socio-economic status. In the United Kingdom for the period 2002-06, 65-year-old men classified as "Higher managerial and professional" could expect to live 3.5 years longer than men in "Routine occupations", and this gap had widened over the previous two decades. The gap for women was similar at 3.2 years. In France, in 2003, 65-year-old men who had highly qualified occupations could expect to live 3.1 years longer in total and 3.7 years longer without disability than men who were manual workers. These gaps were respectively 1.7 years and 3.2 years for women (Cambois *et al.*, 2011).

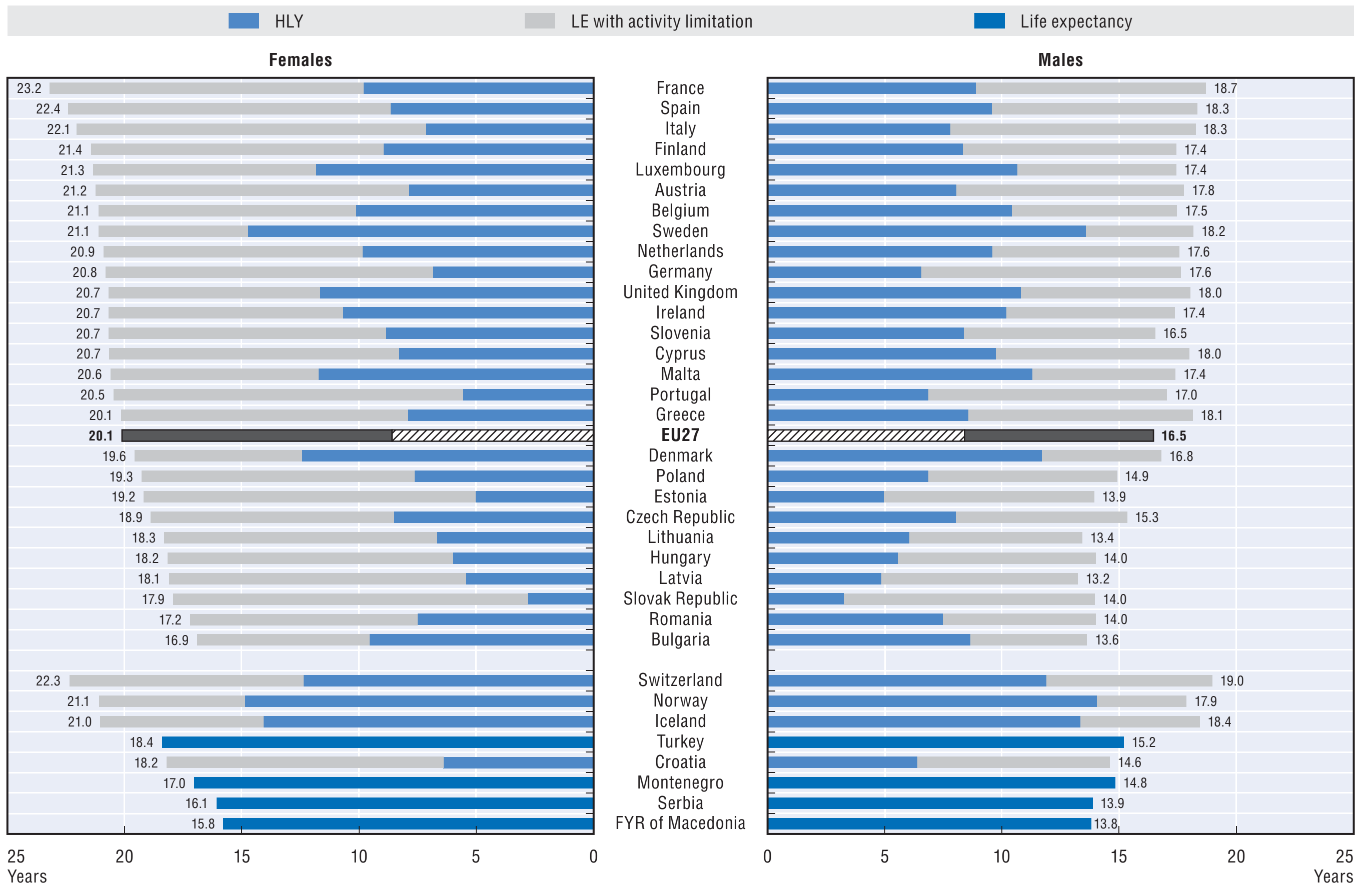
Definition and comparability

Life expectancy measures how long, on average, people would live based on a given set of age-specific death rates. However, the actual age-specific death rates of any particular birth cohort cannot be known in advance. If age-specific death rates are falling (as has been the case over the past decades), actual life spans will, on average, be higher than life expectancy calculated with current death rates.

Healthy life years (HLY) are the number of years spent free of activity limitation, being equivalent to disability-free life expectancy. HLY are calculated annually by Eurostat and EHLEIS for each EU country using the Sullivan (1971) method. The underlying health measure is the Global Activity Limitation Indicator (GALI), which measures limitation in usual activities, and comes from the European Union Statistics on Income and Living Conditions (EU-SILC) survey.

Comparing trends in HLY and life expectancy can show whether extra years of life are healthy years. However, valid comparisons depend on the underlying health measure being truly comparable. While HLY is the most comparable indicator to date, there are still problems with translation of the GALI question, although it does appear to satisfactorily reflect other health and disability measures (Jagger *et al.*, 2010).

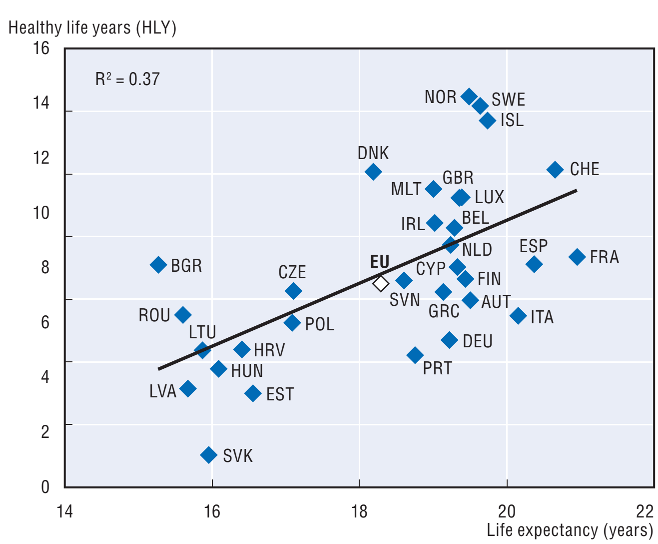
1.2.1. Life expectancy (LE) and healthy life years (HLY) at 65, by gender, 2008-10 average



Source: *Eurostat Statistics Database*; Joint Action: EHLEIS (2012).

StatLink http://dx.doi.org/10.1787/888932702936

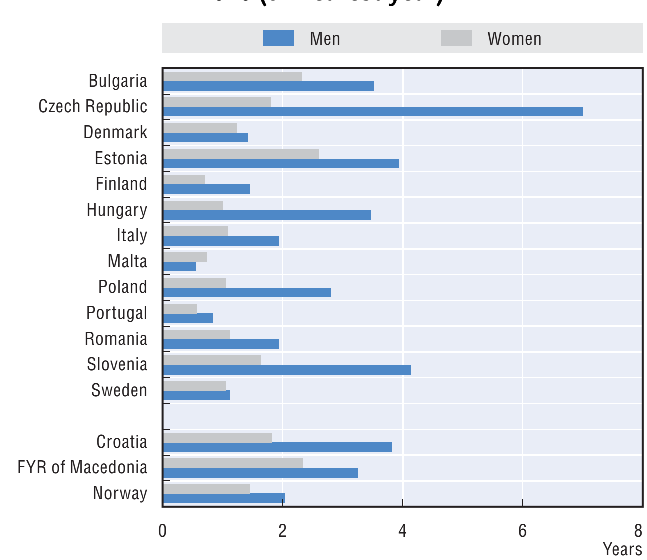
1.2.2. Relationship between life expectancy and healthy life years (HLY) at 65, 2008-10 average



Source: *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932702955

1.2.3. Life expectancy gaps between high and low education attainment at 65, women and men, 2010 (or nearest year)



Source: *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932702974

Statistics on deaths remain one of the most widely available and comparable sources of information on health. Registering deaths is compulsory in all European countries, and the data collected through the process of registration can be used by statistical and health authorities to monitor diseases and health status, and to plan health services. In order to compare levels of mortality across countries and over time, the data need to be standardised to remove the effect of differences in age structure.

In 2010 there were large variations in age-standardised mortality rates for all causes of death across European countries. Death rates were lowest in Spain and Italy, at less than 500 deaths per 100 000 population (Figure 1.3.1). The rate in Switzerland was also low. Rates in northern, western and southern European countries were lower than the EU average rate of 663. They were highest in Baltic and central European countries – Bulgaria, Latvia, Lithuania and Romania, for instance, had age-standardised rates almost twice those of the lowest countries at over 900 deaths per 100 000 population. Rates in Estonia, Hungary and the Slovak Republic were above 800.

Male mortality rates were lowest in Malta, Sweden and Italy, and among other countries, in Iceland and Switzerland. They were high in Latvia and Lithuania. Female rates were low in France, Italy and Spain, as well as in Switzerland, and high in Bulgaria and Romania, along with the Former Yugoslav Republic of Macedonia. A significant gender gap exists in mortality rates (Figure 1.3.1). Across all EU member states, the male mortality rate was, on average, 70% higher than the female rate in 2010. But large differences exist among countries – in Estonia, Latvia and Lithuania, male rates were more than twice those of females, whereas in the Denmark, the Netherlands, Sweden and the United Kingdom, they were only around 40% higher.

Lower mortality rates translate into higher life expectancies (see Indicator 1.1 "Life expectancy and healthy life expectancy at birth"). Differences in life expectancy among countries with the lowest and highest mortality rates are in the order of 8 years for females and 12 years for males. Some important causes of mortality that have been influenced through effective public health measures include ischemic heart disease, lung cancer, alcohol-related mortality, suicide, transport accidents, cervical cancer and AIDS (Cayotte and Buchow, 2009).

Although mortality rates in central Europe are still comparatively high, significant declines have occurred in a number of these countries since 1995 (Figures 1.3.2 and 1.3.3). Mortality rates in the Czech Republic, Estonia, Hungary, Poland and Slovenia have fallen by more than 25%, a decline that is greater than the EU average. Ireland has also seen a decline of close to 40%, driven largely by reductions in cardiovascular and respiratory diseases mortality, which in turn may be linked to rising living standards and increased expenditure on public and private health services in recent decades. In contrast, declines in the Slovak Republic, Bulgaria and Lithuania have been smaller. Declines in Belgium, Greece and Sweden have also been modest, although these countries began the period with rates that were already low.

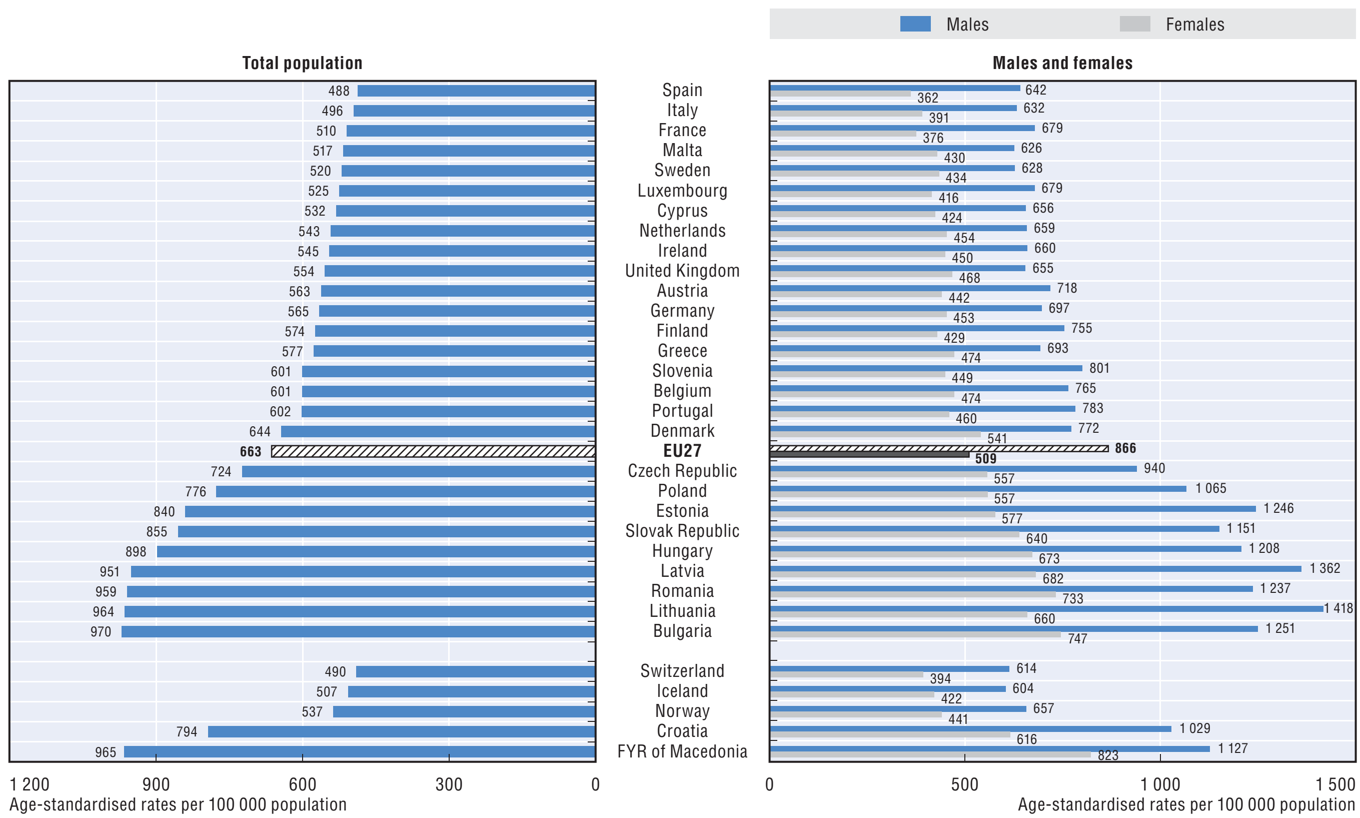
The leading causes of death in Europe include cardiovascular diseases (such as heart attack and stroke), and cancer. Deaths from these diseases, plus selected external causes of death (transport accidents and suicide), are examined more closely in the following four indicators.

Definition and comparability

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the WHO European standard population to remove variations arising from differences in age structures across countries and over time. The source is the *Eurostat Statistics Database*.

Deaths from all causes are classified to ICD-10 Codes A00-Y89, excluding S00-T98. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

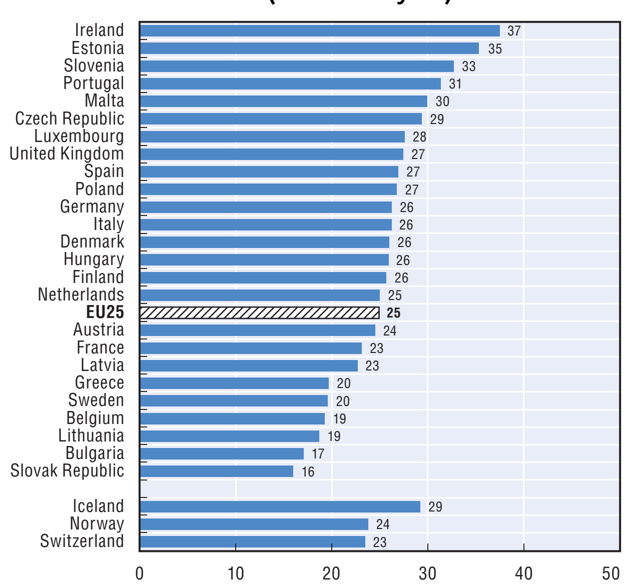
1.3.1. Mortality rates from all causes of death, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932702993

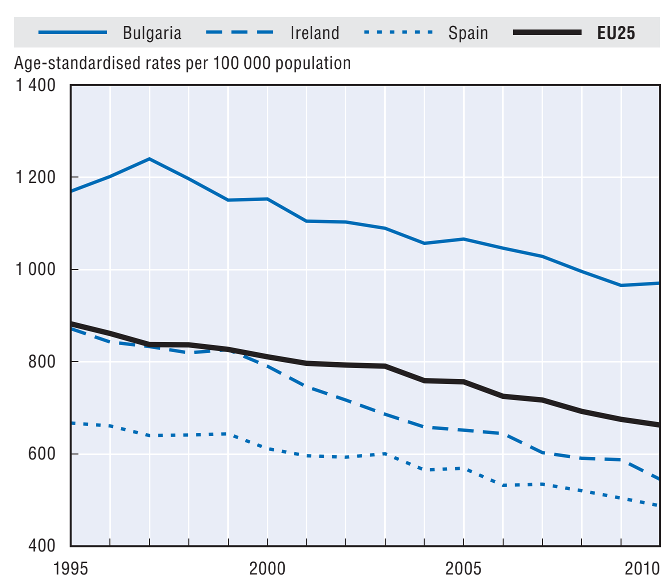
1.3.2. Decline in mortality rates from all causes, 1995-2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703012

1.3.3. Trends in mortality rates from all causes, selected EU member states, 1995-2010



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703031

Cardiovascular diseases are the main cause of mortality in almost all EU member states, accounting for 36% of all deaths in the region in 2010. They cover a range of diseases related to the circulatory system, including ischemic heart disease (known as IHD, or heart attack) and cerebro-vascular disease (or stroke). Together, IHD and stroke comprise 60% of all cardiovascular deaths, and caused more than one-fifth of all deaths in EU member states in 2010.

Ischemic heart disease is caused by the accumulation of fatty deposits lining the inner wall of a coronary artery, restricting blood flow to the heart. IHD alone was responsible for 13% of all deaths in EU member states in 2010. Mortality from IHD varies considerably, however (Figure 1.4.1); Baltic countries report the highest IHD mortality rates, Lithuania for both males and females, followed by Latvia, the Slovak Republic and Estonia. IHD mortality rates are also relatively high in Finland and Malta, with rates several times higher than in France, Portugal, the Netherlands and Spain. There are regional patterns to the variability in IHD mortality rates. Besides the Netherlands and Luxembourg, the countries with the lowest IHD mortality rates are four countries located in Southern Europe: France, Italy, Portugal and Spain, with Cyprus and Greece also having low rates. This lends support to the commonly held hypothesis that there are underlying risk factors, such as diet, which explain differences in IHD mortality across countries.

Death rates for IHD are much higher for men than for women in all countries (Figure 1.4.1). On average across EU member states, IHD mortality rates in 2010 were nearly two times greater for men. The disparity was greatest in Cyprus, France and Luxembourg, with male rates two-to-three times higher, and least in Malta, Romania and the Slovak Republic, at 60% higher.

Since the mid-1990s, IHD mortality rates have declined in nearly all countries (Figure 1.4.3). The decline has been most remarkable in Denmark, Ireland, the Netherlands and the United Kingdom. Estonia and Norway also saw IHD mortality rates cut by one-half or more, although rates in Estonia are still high. Declining tobacco consumption contributed significantly to reducing the incidence of IHD, and consequently to reducing mortality rates. Improvements in medical care have also played a part [see Indicator 3.8 "Cardiac procedures (coronary angioplasty)"]. A small number of countries, however, have seen little or no decline since 1995. Declines in Hungary, Poland and the Slovak Republic have been moderate, at under 20%.

Stroke was the underlying cause for about 9% of all deaths in 2010. It is a loss of brain function caused by the disruption of the blood supply to the brain. In addition to being an important cause of mortality, the disability burden from stroke is substantial (Moon *et al.*, 2003). As with IHD, there are large variations in stroke mortality rates across countries (Figure 1.4.2). Again, the rates are highest in Baltic and central European countries, including Bulgaria, Hungary, Latvia, Lithuania, Romania and the Slovak Republic. They are the lowest in Cyprus, France, Ireland and the Netherlands. Rates are also low in Switzerland, Iceland and Norway.

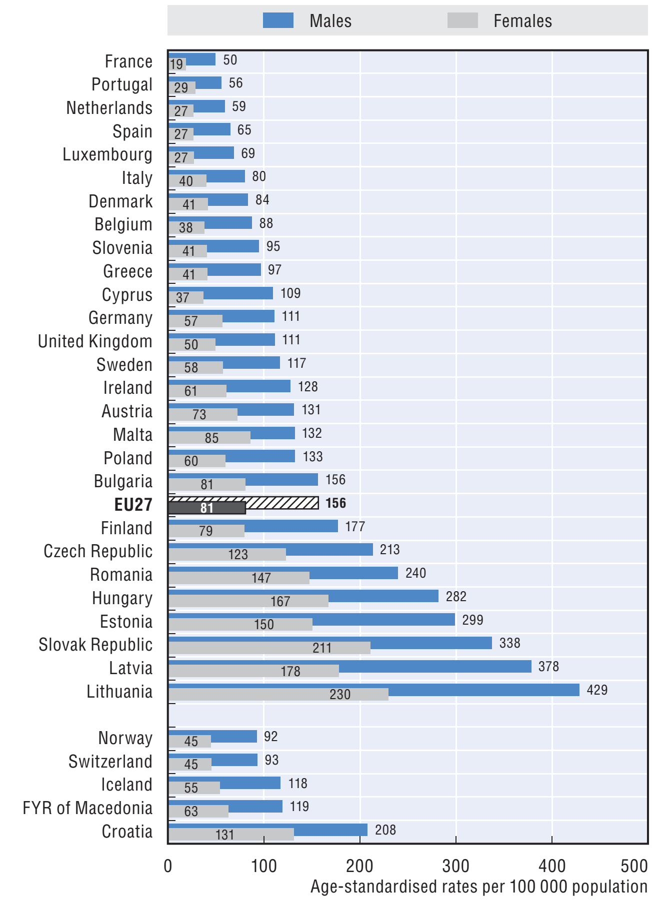
Looking at trends over time, stroke mortality has decreased in all EU member states since 1995, with a more pronounced fall after 2003 (Figure 1.4.4). Rates have declined by around 60% in Austria, Estonia and Portugal. The decline has only been moderate in Lithuania, Poland and the Slovak Republic. As with IHD, the reduction in stroke mortality can be attributed at least partly to a reduction in risk factors. Tobacco smoking and hypertension are the main modifiable risk factors for stroke. Improvements in medical treatment for stroke have also increased survival rates (see Indicator 4.4 "In-hospital mortality following stroke").

Definition and comparability

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the WHO European standard population to remove variations arising from differences in age structures across countries and over time. The source is the *Eurostat Statistics Database*.

Deaths from ischemic heart disease are classified to ICD-10 Codes I20-I25, and stroke to I60-I69. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

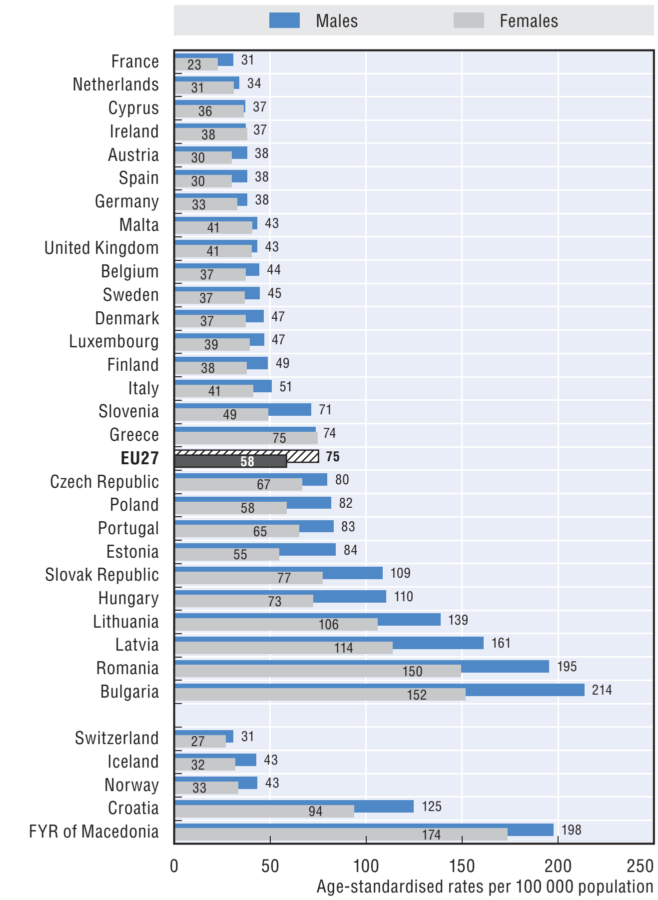
1.4.1. Ischemic heart disease, mortality rates, 2010 (or nearest year)



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703050

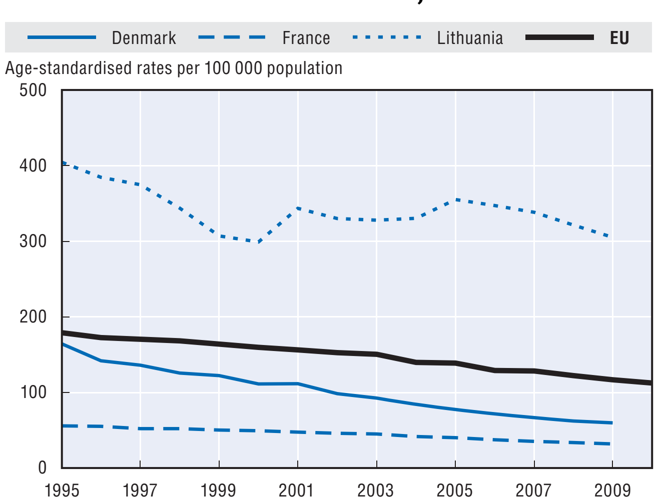
1.4.2. Stroke, mortality rates, 2010 (or nearest year)



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703069

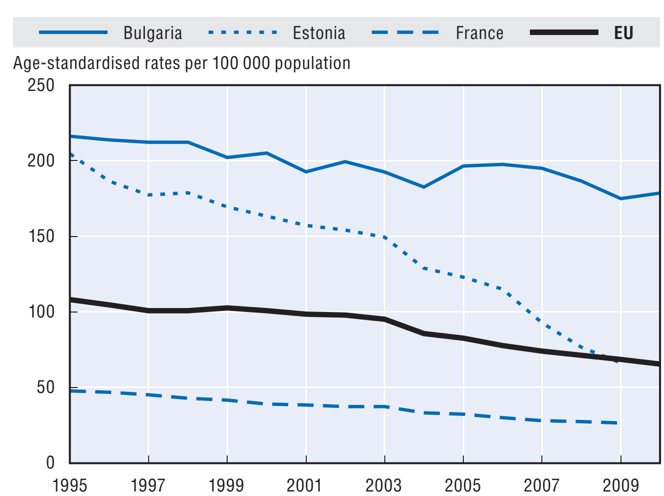
1.4.3. Trends in ischemic heart disease mortality rates, selected EU member states, 1995-2010



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703088

1.4.4. Trends in stroke mortality rates, selected EU member states, 1995-2010



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703107

Cancer is the second leading cause of mortality in EU member states after diseases of the circulatory system, accounting for 28% of all deaths in 2010. In 2010, cancer mortality rates were the lowest in Cyprus, Finland and Sweden, as well as Switzerland, at under 150 deaths per 100 000 population. They were the highest in central European countries, including the Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia, at close to or above 200 deaths per 100 000 population.

Cancer mortality rates are higher for men than for women (Figure 1.5.1). In 2010, the gender gap was particularly wide in Estonia, Latvia, Lithuania, Portugal, the Slovak Republic and Spain, with mortality rates among men more than twice those for women. This gap can be explained partly by the greater prevalence of risk factors among men, as well as the lesser availability or use of screening programmes for cancers affecting men, leading to lower survival rates after diagnosis.

Lung cancer still accounts for the greatest number of cancer deaths among men in EU member states, except in Sweden. Lung cancer is also one of the main causes of cancer mortality among women. Smoking is the most important risk factor for lung cancer. In 2010, death rates from lung cancer among men were the highest in Baltic and central European countries (Hungary, Latvia, Lithuania, Poland, as well as Croatia) (Figure 1.5.2). These are all countries where smoking rates among men are relatively high. Death rates from lung cancer among men are low in Nordic countries (Finland, Iceland, Norway and Sweden) as well as in Cyprus, countries with low smoking rates among men (see Indicator 2.5 "Smoking among adults"). Denmark and Iceland, however, have high rates of lung cancer mortality among women.

Breast cancer is the most common form of cancer among women in all European countries (Ferlay *et al.*, 2010). It accounted for around 30% of cancer incidence among women in 2008, and 18% of female cancer deaths in 2010. While there has been an increase in incidence rates of breast cancer over the past decade, death rates have declined or remained stable, indicating increases in survival rates due to earlier diagnosis and better treatment (see Indicator 4.8 "Screening, survival and mortality for breast cancer"). The lowest mortality rates from breast cancer are in Bulgaria, Portugal, Spain and Sweden, as well as Norway (below 20 deaths per 100 000 females), while the highest rates are in Belgium and Denmark (close to 30) (Figure 1.5.3).

Prostate cancer has become the most commonly occurring cancer among men in many European countries, particularly for those aged over 65 years of age, although death rates from prostate cancer remain lower than for lung cancer in all countries except Sweden. The rise in the reported incidence of prostate cancer in many countries during the 1990s and 2000s was largely due to the greater use of prostate-specific antigen (PSA) diagnostic tests. Death rates from prostate cancer in 2010 varied from lows of less than 15 per 100 000 males in Malta and Luxembourg – although annual numbers of deaths are small in these countries – to highs of more than 30 per 100 000 males in a range of central European and Nordic countries (Figure 1.5.4). The causes of prostate cancer are not well understood. Some evidence suggests that environmental and dietary factors might influence the risk of prostate cancer (Institute of Cancer Research, 2012).

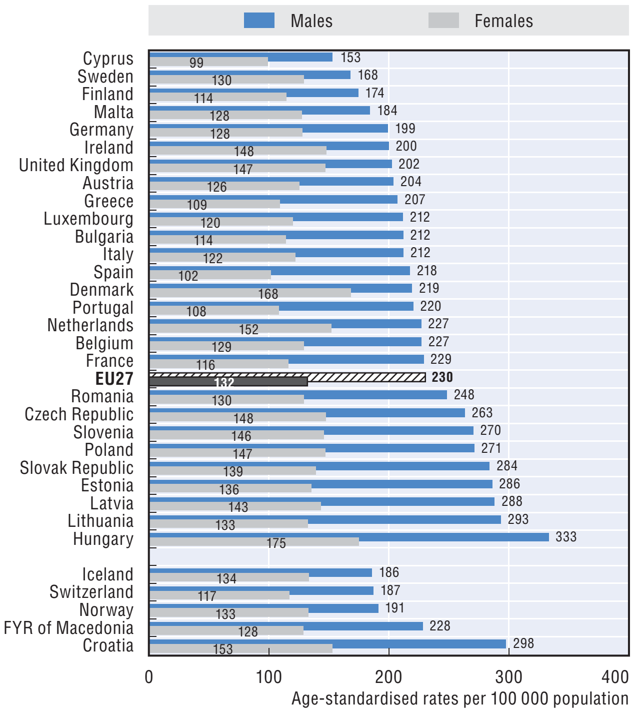
Death rates from all types of cancer for males and females have declined at least slightly in most member states since 1995, although the decline has been more modest than for cardiovascular diseases, explaining why cancer now accounts for a larger share of all deaths. The exceptions to this declining pattern are among Baltic and central European countries – Bulgaria, Latvia, Lithuania, Romania and the Former Yugoslav Republic of Macedonia – where cancer mortality has remained static or increased.

Definition and comparability

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the WHO European standard population to remove variations arising from differences in age structures across countries and over time. The source is the *Eurostat Statistics Database*.

Deaths from all cancers are classified to ICD-10 Codes C00-C97, lung cancer to C32-C34, breast cancer to C50 and prostate cancer to C61. The international comparability of cancer mortality data can be affected by differences in medical training and practices as well as in death certification procedures across countries. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

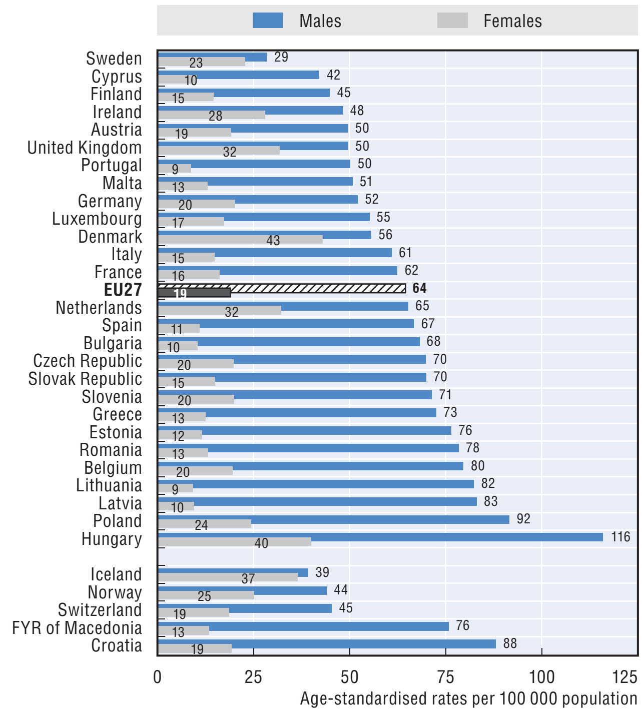
1.5.1. All cancers mortality rates, males and females, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703126

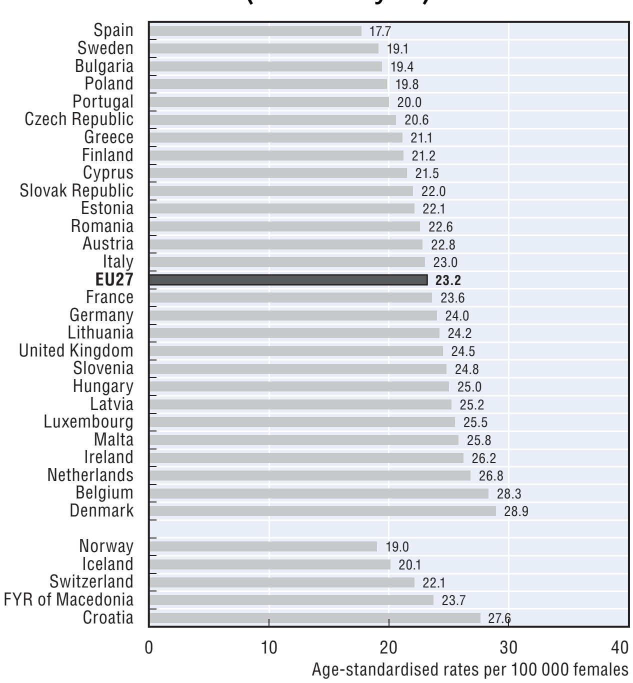
1.5.2. Lung cancer mortality rates, males and females, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703145

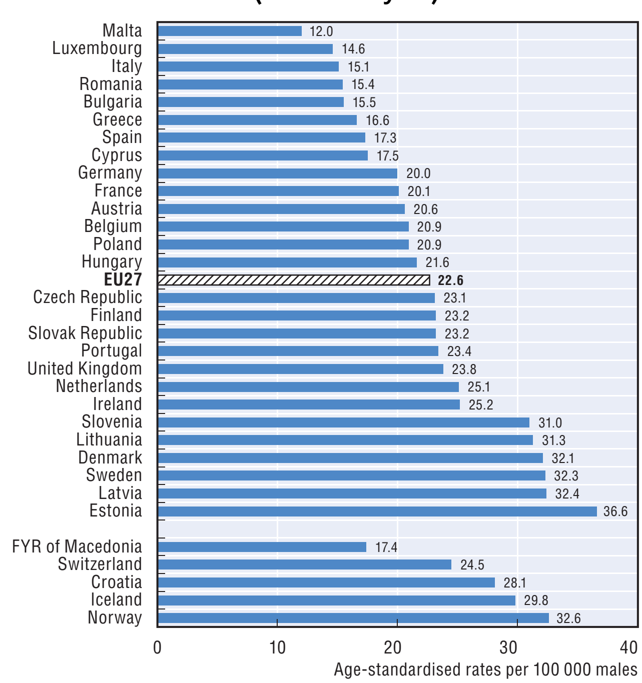
1.5.3. Breast cancer mortality rates, females, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703164

1.5.4. Prostate cancer mortality rates, males, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703183

Injuries from transport accidents – most of which are due to road traffic – are a major public health problem in the European Union, causing the premature deaths of some 40 000 people every year. In addition to these deaths, more than 1.5 million people are estimated to be so seriously injured as to require hospital admission each year (OECD/ITF, 2011a). Around 4 000-5 000 transport accident deaths occurred in each of France, Germany, Italy and Poland in 2010.

Mortality from road accidents is the leading cause of death among children and young people, and especially young men, in many countries. Most fatal traffic injuries occur in passenger vehicles, although the fatality risk for motor cycles and scooters is highest among all modes of transport.

The direct and indirect financial costs of transport accidents are substantial; one estimate put these at up to 3% of gross national product annually in highly-motorised countries (WHO, 2009a).

Death rates were the highest in Romania, Greece and Lithuania in 2010, all in excess of 12 deaths per 100 000 population (Figure 1.6.1). They were the lowest in Malta, the Netherlands, Sweden and the United Kingdom, at less than four deaths per 100 000 population, much lower than the EU average of 7.7. A four-fold difference exists between the countries with the lowest and highest rates.

In all EU member states, death rates from transport accidents are much higher for males than for females, with disparities ranging from three times higher in Denmark, Germany, Ireland, Luxembourg, and the Netherlands, to around five times higher in Cyprus and Greece. On average, around four times as many males than females die in transport accidents (Figure 1.6.1).

Much transport accident injury and mortality is preventable. Road security has increased greatly over the past decades in many countries through improvements of road systems, education and prevention campaigns, the adoption of new laws and regulations and the enforcement of these laws through more traffic controls. As a result, death rates due to transport accidents have been more than halved across the European Union since 1995 (Figures 1.6.2 and 1.6.3). Estonia and Luxembourg have seen the largest declines at 71% since 1995, with most of the fall in Estonia occurring in the mid-1990s. Reductions in Ireland, Portugal and Slovenia and a number of other countries are more than 60% since 1995, although vehicle kilometers travelled have increased substantially in the same period (OECD/ITF, 2011a). Death rates have also declined in Belgium, Greece and Bulgaria, but at a slower pace, and therefore remain well above the EU average.

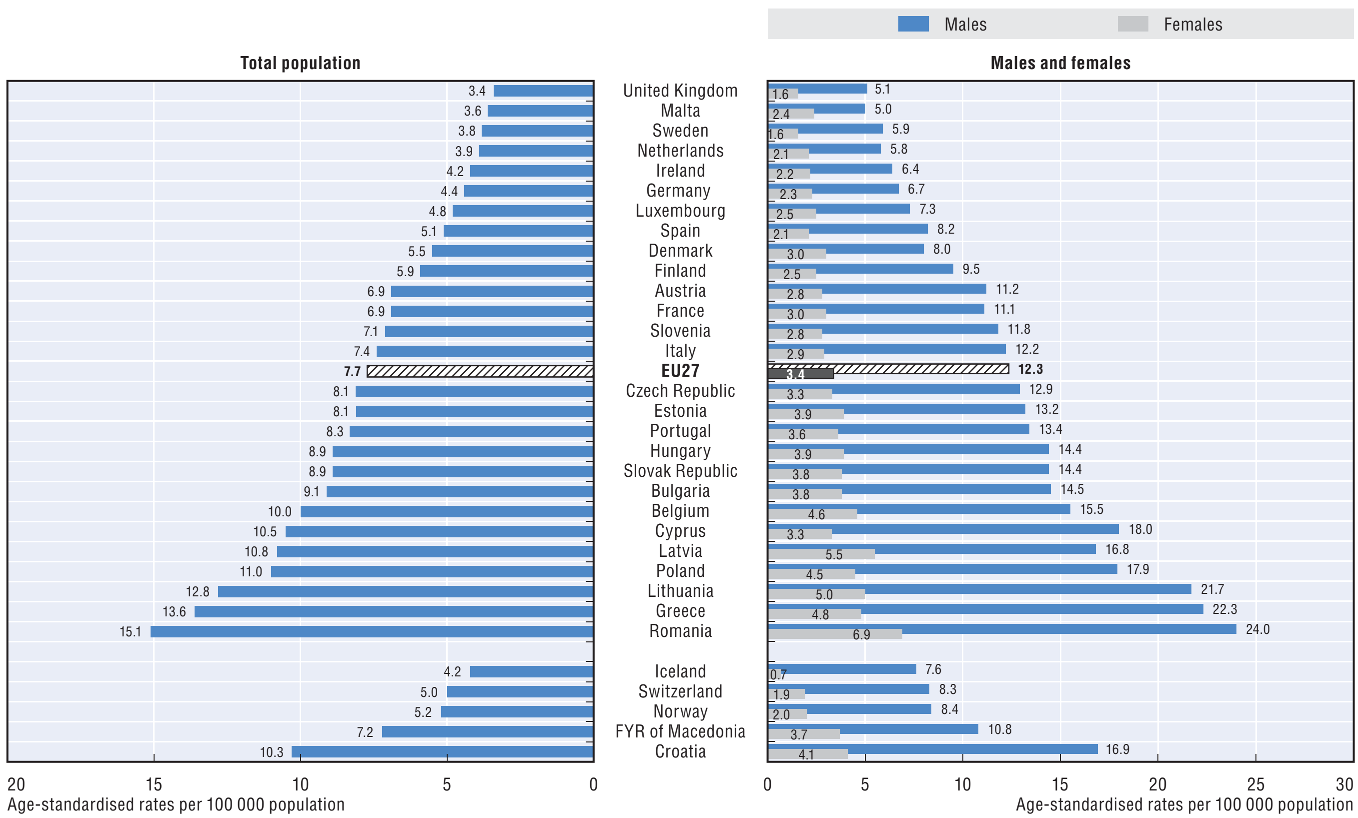
The effects of the economic crisis may have a favourable outcome on transport accident mortality. Many countries had a slight decrease or stagnation in traffic volumes since 2008, accompanied by a much more significant reduction in fatalities. However, in the long-term, effective road safety policies are the main contributor to reduced mortality (OECD/ITF, 2011b).

Definition and comparability

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the WHO European standard population to remove variations arising from differences in age structures across countries and over time. The source is the *Eurostat Statistics Database*.

Deaths from transport accidents are classified to ICD-10 Codes V01-V99. The majority of deaths from transport accidents are due to road traffic accidents. Mortality rates from transport accidents in Luxembourg are biased upward because of the large volume of traffic in transit, resulting in a significant proportion of *non-residents* killed. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

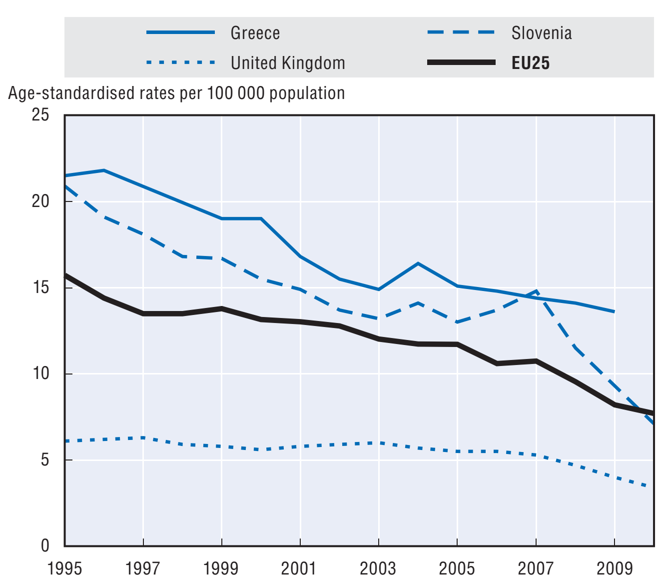
1.6.1. Transport accident mortality rates, 2010 (or nearest year)



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703202

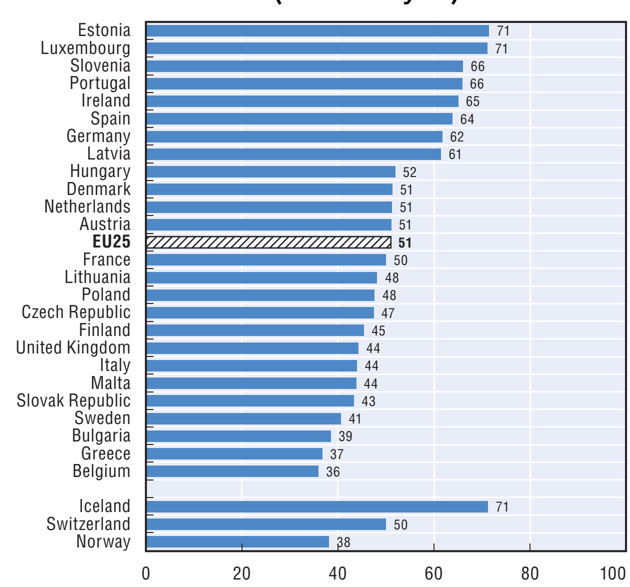
1.6.2. Trends in transport accident mortality rates, selected EU member states, 1995-2010



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703221

1.6.3. Decline in transport accident mortality rates, 1995-2010 (or nearest year)



Source: Eurostat Statistics Database. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703240

The intentional killing of oneself can be seen as evidence not only of personal breakdown, but also of a deterioration of the social context in which an individual lives. Suicide may be the end-point of a number of different contributing factors. It is more likely to occur during crisis periods associated with upheavals in personal relationships, through alcohol and drug abuse, unemployment, clinical depression and other forms of mental illness. Because of this, suicide is often used as a proxy indicator of the mental health status of a population. However, the number of suicides in certain countries may be under-reported because of the stigma that is associated with the act, or because of data issues associated with reporting criteria (see "Definition and comparability").

Suicide is a significant cause of death in many EU member states, with approximately 60 000 such deaths in 2010. Rates of suicide were low in southern European countries – Cyprus, Greece, Italy, Malta, Portugal and Spain – as well as in the United Kingdom, at eight deaths or less per 100 000 population (Figure 1.7.1). They were highest in the Baltic States and Central Europe; in Estonia, Hungary, Latvia, Lithuania and Slovenia there were more than 17 deaths per 100 000 population. There is more than a ten-fold difference between Lithuania and Greece, the countries with the lowest and highest death rates.

Death rates from suicide are four-to-five times greater for men than for women across the European Union, although in those countries with the highest rates, male deaths are up to seven times as common (Figure 1.7.1). The gender gap is narrower for attempted suicides, reflecting the fact that women tend to use less fatal methods than men. Suicide is also related to age, with young people aged under 25 and elderly people especially at risk. While suicide rates among the latter have generally declined over the past two decades, little progress has been observed among younger people.

Since 1995, suicide rates have decreased in many countries, with pronounced declines of 40% or more in Bulgaria, Estonia and Latvia (Figure 1.7.2). Despite this progress, Estonia and Latvia still have among the highest suicide rates in Europe. On the other hand, death rates from suicides have increased since 1995 in Malta, Poland and Portugal, as well as Iceland, although rates in Iceland and Malta are dependent on small numbers. Iceland, Malta and Portugal still remain below the EU average. There is no strong evidence that national suicide rates have increased since the onset of the economic crisis.

Suicide rates in Lithuania increased steadily after 1990, especially among young men, peaking in 1996 (Figure 1.7.3). The high suicide rates in Lithuania have been associated with a wide range of factors including rapid socio-economic transition, increasing psychological and social insecurity and the absence of a national suicide prevention strategy. Similarly in Hungary, societal factors including employment and socio-economic circumstances, as well as individual demographic and clinical factors have been cited as determinants of suicide (Almasi *et al.*, 2009).

Mental health problems are rising in the European Union. The European Pact for Mental Health and Well-being, launched in 2008, recognised the prevention of depression and suicide as one of five priority areas. It called for action through improved training of mental health professionals, restricted access to potential means for suicide, measures to raise mental health awareness, measures to reduce risk factors for suicide such as excessive drinking, drug abuse and social exclusion, depression and stress, and provision of support mechanisms after suicide attempts and for those bereaved by suicide, such as emotional support helplines (EC, 2009b).

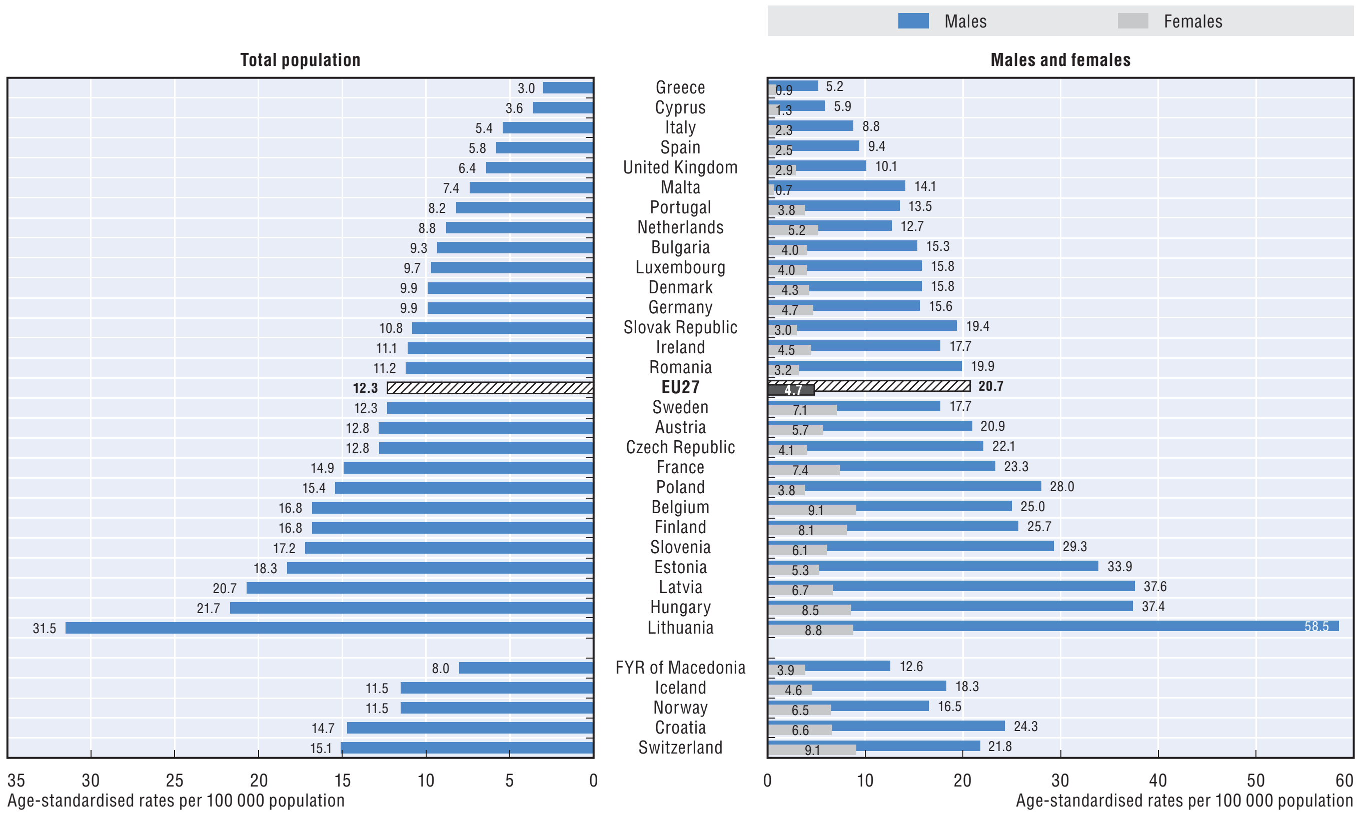
Definition and comparability

The World Health Organization defines "suicide" as an act deliberately initiated and performed by a person in the full knowledge or expectation of its fatal outcome. Comparability of suicide data between countries is affected by a number of reporting criteria, including how a person's intention of killing themselves is ascertained, who is responsible for completing the death certificate, whether a forensic investigation is carried out, and the provisions for confidentiality of the cause of death. Caution is required therefore in interpreting variations across countries.

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the WHO European standard population to remove variations arising from differences in age structures across countries and over time. The source is the *Eurostat Statistics Database*.

Deaths from suicide are classified to ICD-10 Codes X60-X84. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

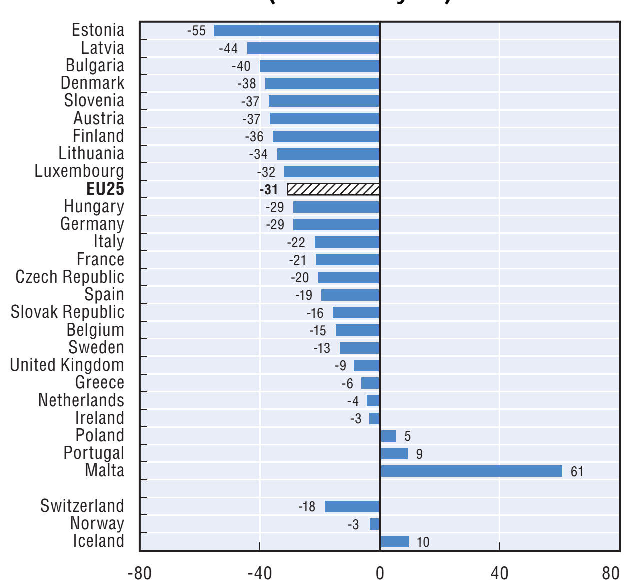
1.7.1. Suicide mortality rates, 2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703259

1.7.2. Change in suicide rates, 1995-2010 (or nearest year)



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

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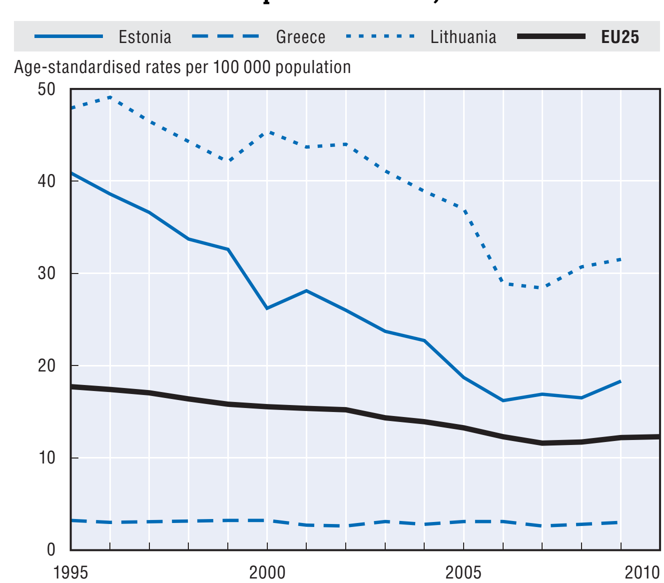
1.7.3. Trends in suicide rates, selected European countries, 1995-2010



Source: *Eurostat Statistics Database*. Data are age-standardised to the WHO European standard population.

StatLink http://dx.doi.org/10.1787/888932703297

Infant mortality, the rate at which babies and children of less than one year of age die, reflects the effect of economic and social conditions on the health of mothers and newborns, as well as the effectiveness of health systems.

In most European countries, infant mortality is low and there is little difference in rates (Figure 1.8.1). A small group of countries, however, have infant mortality rates above five deaths per 1 000 live births. In 2010, rates ranged from a low of less than three deaths per 1 000 live births in Nordic countries (with the exception of Denmark), Portugal, Slovenia and the Czech Republic, up to a high of 9.8 and 9.4 in Romania and Bulgaria respectively, and 13.6 in Turkey. Infant mortality rates were also relatively high (more than six deaths per 1 000 live births) in Serbia and the Former Yugoslav Republic of Macedonia. The average across the 27 EU member states in 2010 was 4.2 deaths per 1 000 live births. Infant mortality rates tend to be higher than the EU average in central European countries, with the exceptions of the Czech Republic and Slovenia, both of which have had consistently lower rates.

Around two-thirds of the deaths that occur during the first year of life are neonatal deaths (*i.e.* during the first four weeks). Birth defects, prematurity and other conditions arising during pregnancy are the principal factors contributing to neonatal mortality in developed countries. With an increasing number of women deferring childbearing and the rise in multiple births linked with fertility treatments, the number of pre-term births has tended to increase (see Indicator 1.9 "Infant health: Low birth weight"). In a number of higher-income countries, this has contributed to a leveling-off of the downward trend in infant mortality rates over the past few years. For deaths beyond one month (post neonatal mortality), there tends to be a greater range of causes – the most common being SIDS (Sudden Infant Death Syndrome), birth defects, infections and accidents.

All European countries have achieved remarkable progress in reducing infant mortality rates from the levels of 1970, when the average was 25 deaths per 1 000 live births, to the current average of 4.2 (Figure 1.8.1). This equates to a cumulative reduction of over 80% since 1970. Portugal has seen its infant mortality rate reduced by 7.5% per year on average since 1970, moving from the country with the highest rate in Europe to an infant mortality rate among the lowest in Europe in 2010 (Figure 1.8.2). Large reductions in infant mortality rates have also been observed in Slovenia, Italy, Cyprus and Greece, as well as the Former Yugoslav Republic of Macedonia and Croatia. The reduction in infant mortality rates has been slower in Bulgaria, Latvia and the Netherlands, although rates in the latter two countries were low in 1970. Infant mortality rates in Poland declined rapidly in the early 1990s to approach the EU average.

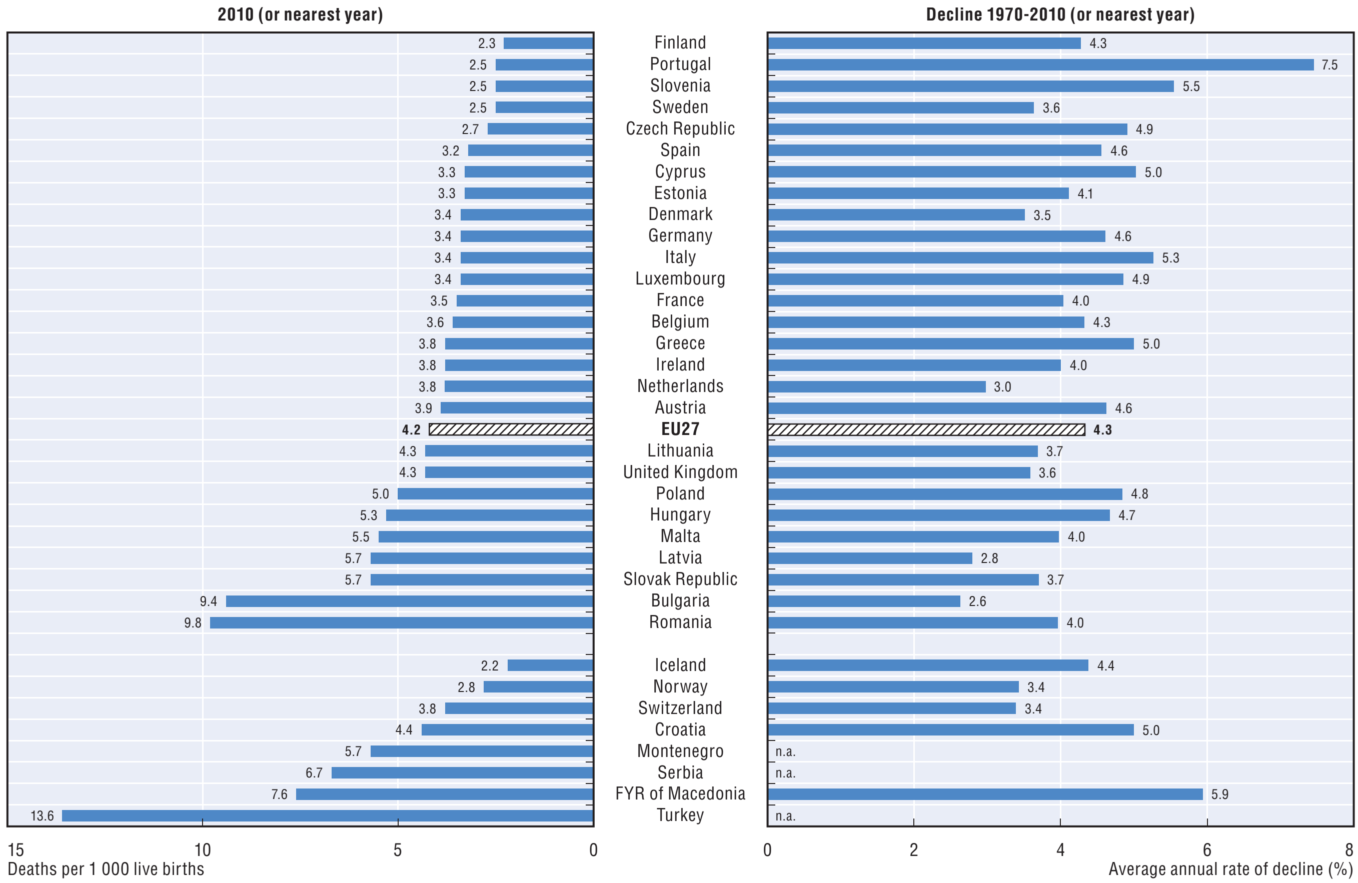
Numerous studies have used infant mortality rates as a health outcome to examine the effect of a variety of medical and non-medical determinants of health (*e.g.* OECD, 2010a). Although most analyses show an overall negative relationship between infant mortality and health spending, the fact that some countries with a high level of health expenditure do not exhibit low levels of infant mortality suggests that more health spending is not necessarily required to obtain better results (Retzlaff-Roberts *et al.*, 2004). A body of research also suggests that many factors beyond the quality and efficiency of the health system – such as income inequality, the social environment, and individual lifestyles and attitudes – influence infant mortality rates (Schell *et al.*, 2007).

Definition and comparability

The infant mortality rate is the number of deaths of children under one year of age in a given year, expressed per 1 000 live births. Neonatal mortality refers to the death of children under 28 days.

Some of the international variation in infant and neonatal mortality rates may be due to variations among countries in registering practices of premature infants. Most countries have no gestational age or weight limits for mortality registration. Minimal limits exist for Norway (to be counted as a death following a live birth, the gestational age must exceed 12 weeks) and in the Czech Republic, the Netherlands and Poland a minimum gestational age of 22 weeks and/or a weight threshold of 500 grams is applied.

1.8.1. Infant mortality rates, 2010 and decline 1970-2010



Source: *Eurostat Statistics Database.*

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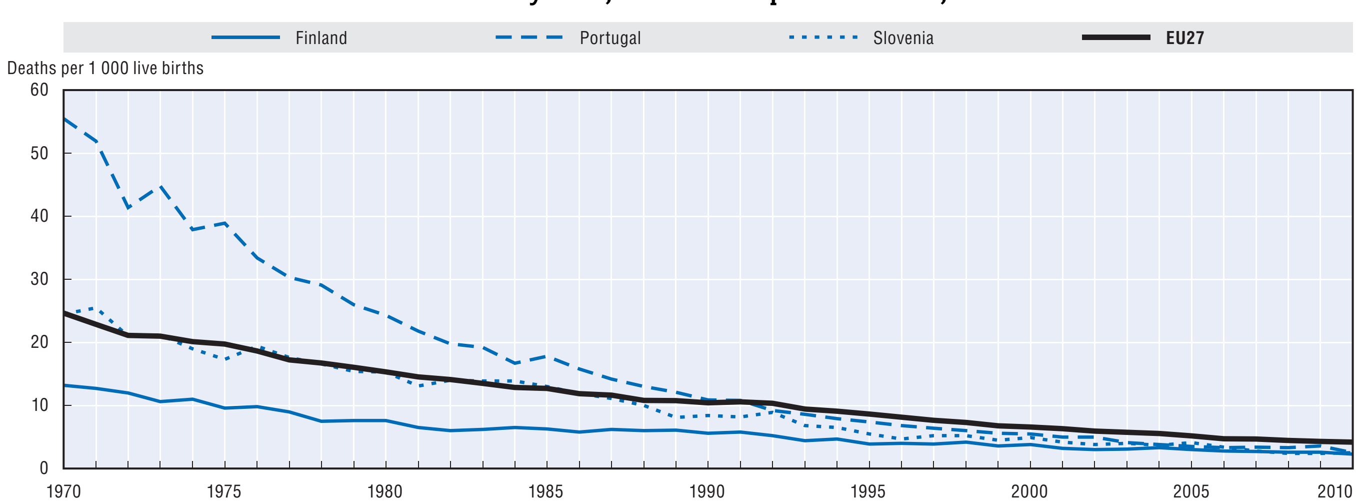
1.8.2. Infant mortality rates, selected European countries, 1970-2010



Source: *Eurostat Statistics Database.*

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Low birth weight – defined as a newborn weighing less than 2 500 grams – is an important indicator of infant health because of the close relationship between birth weight and infant morbidity and mortality. There are two categories of low birth weight babies: those occurring as a result of restricted foetal growth and those resulting from pre-term birth. Low birth weight infants have a greater risk of poor health or death, require a longer period of hospitalisation after birth, and are more likely to develop significant disabilities (UNICEF and WHO, 2004).

Risk factors for low birth weight include adolescent motherhood, a previous history of low weight births, engaging in harmful behaviours such as smoking and excessive alcohol consumption, having poor nutrition, a background of low parental socio-economic status, and having had in-vitro fertilisation treatment.

One-in-fifteen babies born in the European Union in 2010 – or 6.9% of all births – weighed less than 2 500 grams at birth. A north-south gradient is evident for low birth weight in Europe, in that the Nordic countries and Baltic States – including Estonia, Finland, Iceland, Latvia, Lithuania and Sweden – reported the smallest proportions of low weight births, with less than 5.0% of live births so defined. Countries from Southern Europe including Cyprus, Greece, Portugal and Spain, as well as Bulgaria, Hungary, Romania, Turkey and the Former Yugoslav Republic of Macedonia, are at the other end of the scale with rates of low birth weight infants above 7.5%. The proportion of low birth weight among European countries varies by a factor of almost three (Figure 1.9.1).

Since 1980, and more so after 1995, the prevalence of low birth weight infants has increased in most European countries (Figure 1.9.1). There are several reasons for this rise. The number of multiple births, with the increased risks of pre-term births and low birth weight, has risen steadily, partly as a result of the rise in fertility treatments. Other factors which may have influenced the rise in low birth weight are older age at childbearing and increases in the use of delivery management techniques such as induction of labour and caesarean delivery, which have increased the survival rates of low birth weight babies.

Greece, Malta, Portugal and Spain have seen great increases in the past three decades (Figure 1.9.2). As a result, the proportion of low birth weight babies in these countries is now above the European average. Low birth weight proportions in Poland and Hungary have declined over the same time period. Little change occurred in Nordic countries including Denmark, Finland, Iceland and Sweden, although a rise was observed in Norway.

Figure 1.9.3 shows some correlation between the percentage of low birth weight infants and infant mortality rates. In general, countries reporting a low proportion of low birth weight infants also report relatively low infant mortality rates. This is the case for instance for the Nordic countries. Greece, however, is an exception, reporting a high proportion of low birth weight infants but a low infant mortality rate.

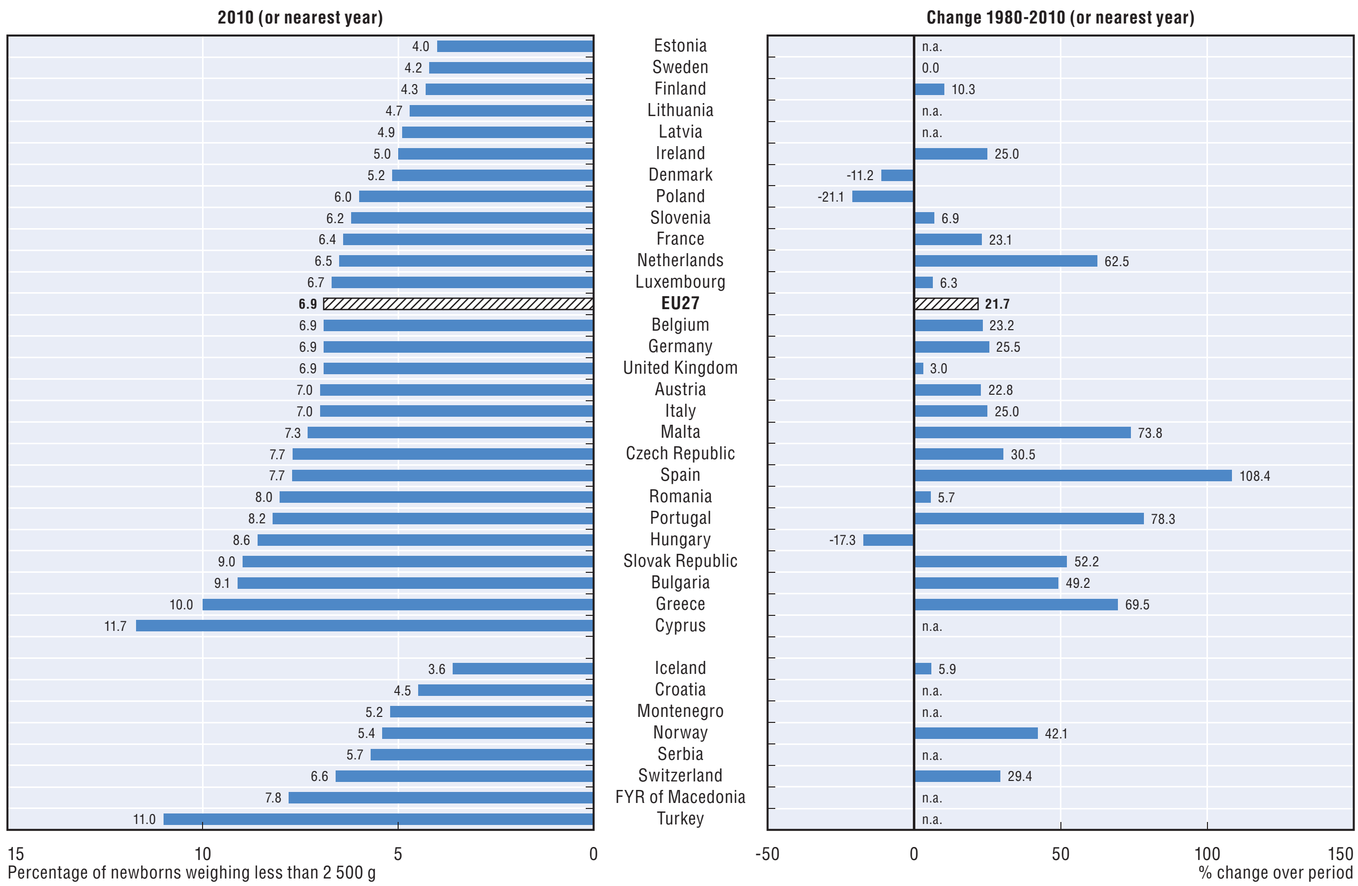
Despite the widespread use of a 2 500 grams limit for low birthweight, physiological variations in size occur among different countries and population groups, and these need to be taken into account when interpreting differences (EURO-PERISTAT, 2008). Some populations may have lower than average birth weights than others because of genetic differences. Comparisons of different population groups within countries show that the proportion of low birth weight infants is also influenced by non-medical factors. In England and Wales, mothers' marital status at birth, being a mother from non-White ethnic group and living in a deprived area were associated with low birthweight (Bakeo and Clarke, 2006). In Greece, marital status, education, maternal occupation and region of residence were significant factors (Lekea-Karanika *et al.*, 1999).

Definition and comparability

Low birth weight is defined by the World Health Organization (WHO) as the weight of an infant at birth of less than 2 500 grams (5.5 pounds), irrespective of the gestational age of the infant. This is based on epidemiological observations regarding the increased risk of death to the infant and serves for international comparative health statistics. The number of low weight births is then expressed as a percentage of total live births.

The majority of the data comes from birth registers. A small number of countries supply data for selected regions or from surveys.

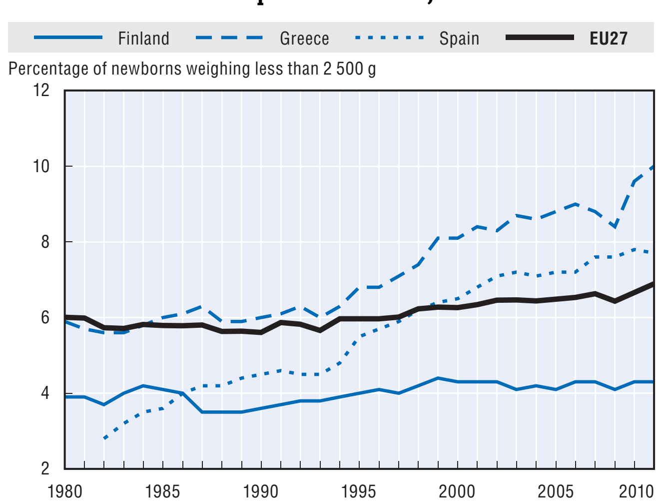
1.9.1. Low birth weight infants, 2010 and change 1980-2010



Source: *OECD Health Data 2012; WHO European Health for All Database.*

StatLink http://dx.doi.org/10.1787/888932703354

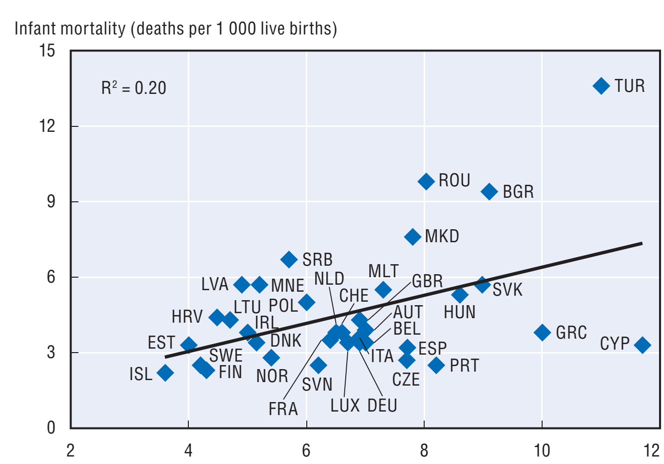
1.9.2. Trends in low birth weight infants, selected European countries, 1980-2010



Source: *OECD Health Data 2012; WHO European Health for All Database.*

StatLink http://dx.doi.org/10.1787/888932703373

1.9.3. Low birth weight and infant mortality, 2010 (or nearest year)



Source: *OECD Health Data 2012; WHO European Health for All Database.*

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Most European countries conduct regular health surveys which allow respondents to report on different aspects of their health. A commonly-asked question relates to self-perceived health status, of the type: "How is your health in general?". Despite the subjective nature of this question, indicators of perceived general health have been found to be a good predictor of people's future health care use and mortality (DeSalvo *et al.*, 2005; Bond *et al.*, 2006).

For the purpose of international comparisons however, cross-country differences in perceived health status are difficult to interpret because responses may be affected by social and cultural factors. Since they rely on the subjective views of the respondents, self-reported health status may reflect cultural biases or other influences. Also, since the elderly report poor health more often than younger people, countries with a larger proportion of aged persons will also have a lower proportion of people reporting good or very good health. In addition, the institutionalised population, which has poorer health than the rest of the population, is often not surveyed.

With these limitations in mind, in almost all European countries a majority of the adult population rate their health as good or very good (Figure 1.10.1). In Ireland and Sweden, as well as Switzerland, more than eight out of ten people report good or very good health. Across the European Union, two-thirds (67%) of all adults rated their health as good or better, with France, Germany and Italy close to this average. Adults in central European countries, along with Portugal, report the lowest rates of good or very good health. In Croatia, Estonia, Hungary, Latvia, Lithuania, Poland and Portugal, less than 60% of all adults consider themselves to be in good health. These differences, however, do not necessarily mean that the general health of people in Ireland or Sweden is objectively better than that of citizens in Latvia or Portugal (Baert and de Norre, 2009).

In all European countries, men are more likely than women to rate their health as good or better, with the largest differences in Portugal and Bulgaria. Unsurprisingly, people's rating of their own health tends to decline with age. In many countries there is a particularly marked decline in a positive rating of one's own health after age 45 and a further decline after age 65. People who are unemployed, retired or inactive more often report bad or very bad health (Baert and de Norre, 2009). People with a lower level of education or income do not rate their health as positively as people with higher levels (OECD, 2012a; Mackenbach *et al.*, 2008).

Another common health interview survey question asks whether respondents had any long-standing illnesses or health problems. Three-in-ten adults in EU member states reported having illnesses or health problems (Figure 1.10.1). Adults in Finland and Estonia were more likely to report having illnesses or health problems, while these conditions were less commonly reported in Romania and Bulgaria. Women reported long-standing illnesses or health problems more often than men (an average of 33% *vs.* 28% across EU member states), with the gender divide greatest in Finland and Latvia. Reporting increased with age, from an average of 7% of young people aged 16-24 years, to 73% of older persons aged 85 years or more. There is a moderate negative association between adults reporting good/very good health, and reporting a long-standing illness or health problem ($R^2 = -0.28$).

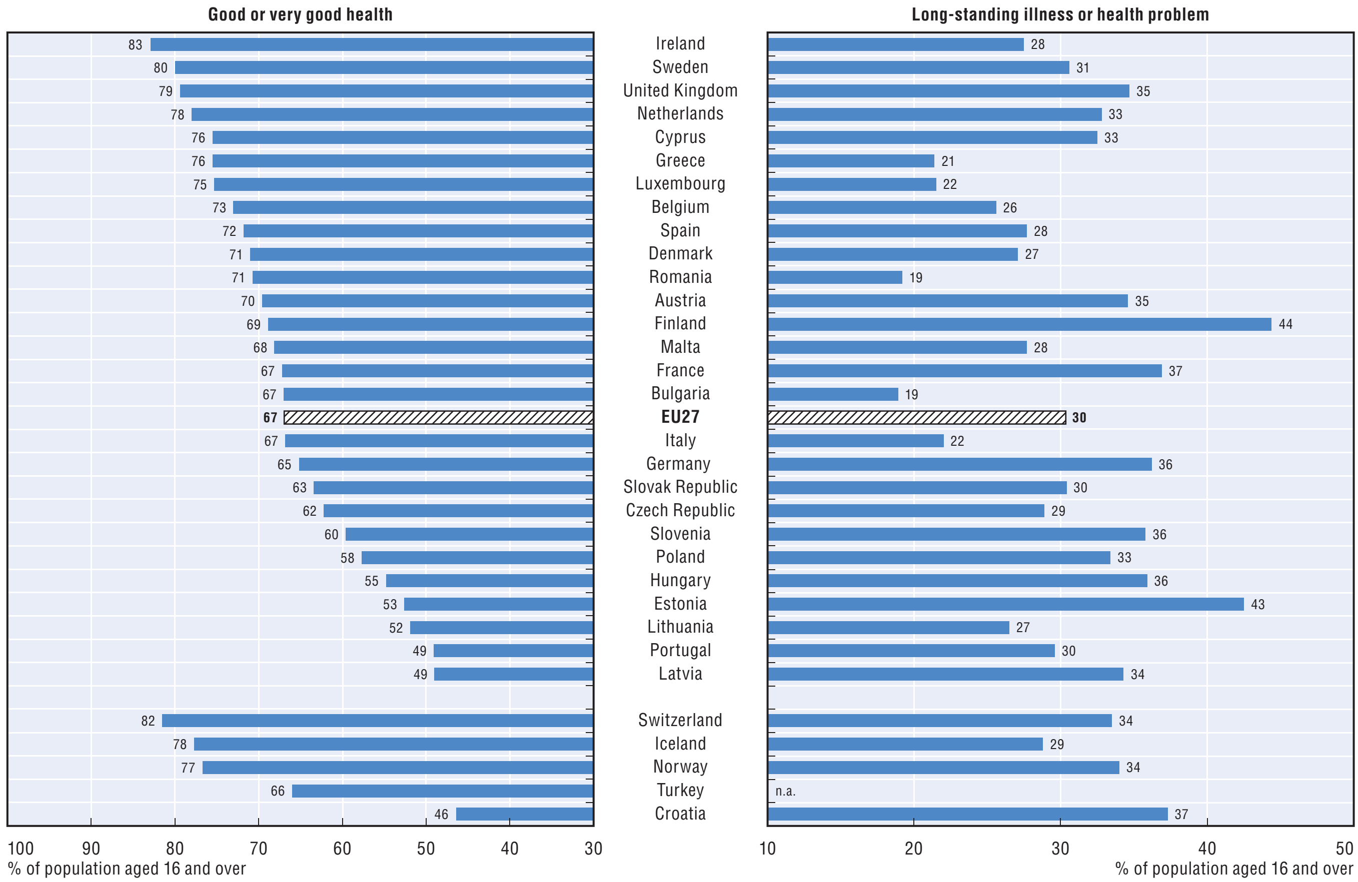
When adults were asked whether they had been limited in their usual daily activities because of a health problem – which is one definition of disability – 24% answered that they had, with 8% of respondents "strongly limited" and 17% "limited to some extent" (Figure 1.10.2). Adults most commonly reported activity limitation in Estonia, Finland, Germany, Latvia, Portugal, Slovenia and the Slovak Republic, as well as Croatia (30% or more of respondents), and less so in Malta and Sweden (less than 15%). Severe activity limitation was more prevalent in Germany, Slovenia and the Slovak Republic, as well as Croatia (10% or more of respondents), and less so in Bulgaria and Malta (less than 5%). Adults with activity limitations were also less likely to report good or very good health ($R^2 = 0.53$).

Definition and comparability

Self-reported health reflects people's overall perceptions of their own health, including both physical and psychological dimensions. Typically ascertained through health interview surveys, respondents are asked a number of questions on their health and functioning. The three questions used in the EU-SILC survey, and some other national surveys are: *i)* "How is your health in general? Is it very good, good, fair, bad, very bad"; *ii)* "Do you have any longstanding illness or health problem which has lasted, or is expected to last for six months or more?"; and *iii)* "For at least the past six months, have you been hampered because of a health problem in activities people usually do? Yes, strongly limited/Yes, limited/No, not limited".

Persons in institutions are not surveyed. Caution is required in making cross-country comparisons of perceived general health, since people's assessment of their health is subjective and can be affected by their social and cultural backgrounds.

1.10.1. Adults' self-reported health status, 2010



Source: EU Statistics on Income and Living Conditions survey; *OECD Health Data 2012*.

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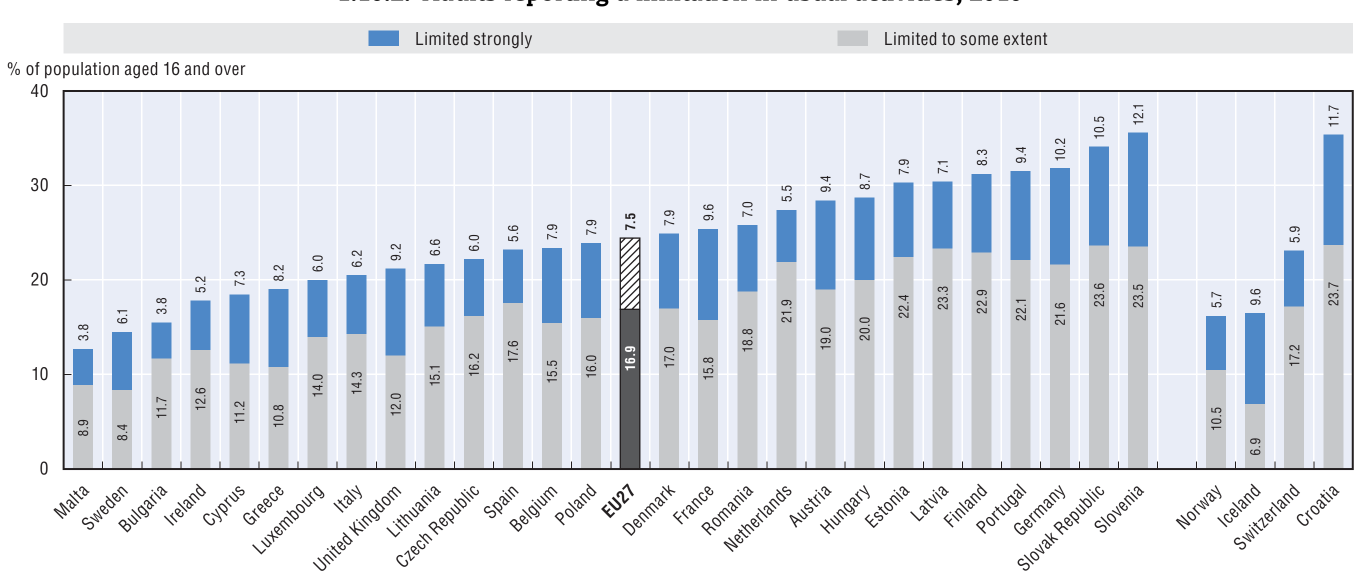
1.10.2. Adults reporting a limitation in usual activities, 2010



Source: EU Statistics on Income and Living Conditions survey.

StatLink http://dx.doi.org/10.1787/888932703430

Communicable diseases such as chlamydia, pertussis and hepatitis B still pose major threats to the health of European citizens. Chlamydia is the most common sexually transmitted infection in Europe. Three-quarters of all cases are reported among young people aged 15-24 years, and numbers are steadily increasing. It can be controlled through prevention, reducing risk behaviour, early detection and effective management. Pertussis (or whooping cough) is highly infectious, and is caused by the bacterium *Bordetella pertussis*. The disease derives its name from the sound made from the intake of air after a cough. Hepatitis B is an infection of the liver caused by the hepatitis B virus. The virus is transmitted by contact with blood or body fluids of an infected person. A small proportion of infections become chronic, and these people are at high risk of death from cancer or cirrhosis of the liver. Protection against pertussis and hepatitis B is available through vaccination (see Indicator 4.10 "Childhood vaccination programmes").

Over 285 000 chlamydia cases were reported annually in EU member states during 2007-09, with almost all infections reported by five countries (the United Kingdom, and the Nordic countries of Denmark, Finland, Norway and Sweden). The true number of chlamydia cases is likely to be much higher, since the infection is liable to underreporting and asymptomatic disease. Confirmed case rates were highest in Iceland (655 per 100 000 population), Denmark (514), Sweden (458), the United Kingdom (290) and Finland (258) (Figure 1.11.1). Between 2006 and 2009, incidence of reported and confirmed cases increased by 42%, although much of this was a result of improved case detection in a number of countries (ECDC, 2011).

Over 14 000 pertussis cases were reported annually among EU member states in 2007-09, with an overall incidence of 5 per 100 000 population (Figure 1.11.2). The highest incidences were reported in Norway (104 cases per 100 000 population), the Netherlands (44), Estonia (38) and Slovenia (17). Most cases were reported from the Netherlands, Norway and Poland, which together contributed almost three-quarters (71%) of all cases reported in 2009. Pertussis incidence has more than halved since 1991-93, when the average rate among EU member states was 11.3 notified cases per 100 000 population.

Two-thirds of all pertussis cases in 2008 occurred among children aged 5-14 years of age, although the disease may be underdiagnosed in adolescents and adults. The highest incidence occurred among infants aged less than one year, many of whom are too young to be vaccinated, and children aged 10-14 years, who may have not had a full course of vaccination, or who may have lost their immunity. Vaccination status was known in only half of all reported cases, but of these 21% were unvaccinated (EUVAC.NET, 2010).

Around 6 000 hepatitis B cases were reported annually in EU member states during 2007-09. The highest incidence rates occurred among Iceland (13.8 notified cases per 100 000 population, including both acute and chronic cases), Bulgaria (8.2) and Latvia (6.3) (Figure 1.11.3). The EU average was 2.0 cases per 100 000 population. The notification rate has declined since 1991-93, when it was 8.3 cases per 100 000 population on average. Hepatitis B infection is more common in the southern parts of Eastern and Central Europe, and low in prevalence in most of Western Europe. Around twice as many cases of hepatitis B occurred among males than females in 2009, with the majority reported in the age group 25-44 years (49% of the total), followed by 15-24 year-olds. The disease has the characteristics of both a sexually transmitted and a blood-borne disease, although the disease pattern and risk groups differ widely across Europe (ECDC, 2011). Enhanced surveillance systems will provide the better information which is needed to monitor the disease.

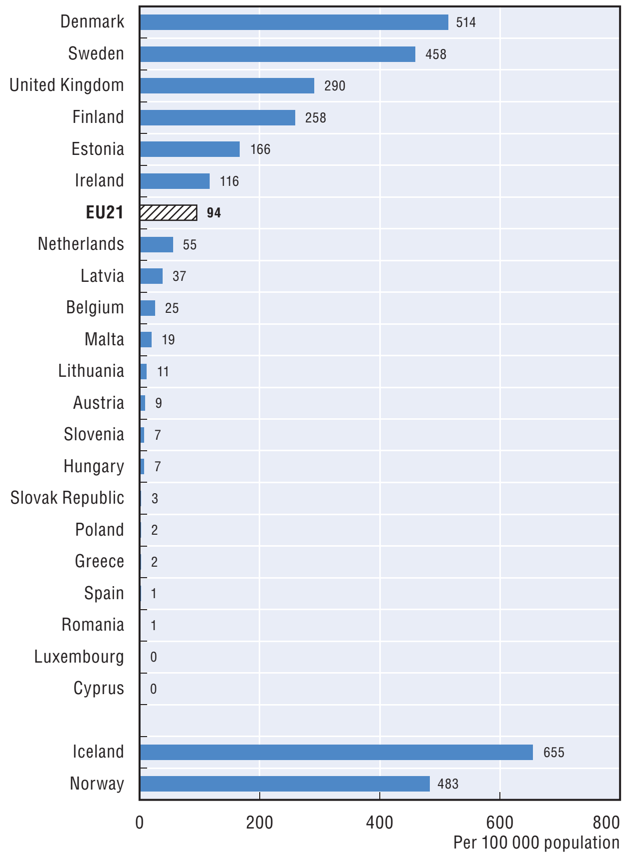
The European Centre for Disease Prevention and Control (ECDC) was set up in 2005 to assist the European Union by identifying and assessing the risk of current and emerging threats to human health posed by infectious diseases.

Definition and comparability

Although notification of chlamydia is compulsory in most European countries, national surveillance systems for sexually transmitted infections consist of voluntary, sentinel or laboratory systems, and often do not provide full country coverage. Countries also differ in reporting systems, diagnosis, testing and screening programmes. Underreporting is likely.

Mandatory notification systems for pertussis and hepatitis B also exist in most European countries, although again case definitions, laboratory confirmation requirements and reporting systems may differ. Pertussis notification was voluntary in Belgium and France, and France had a sentinel surveillance system.

1.11.1. Notification rate of chlamydia infection, 2007-09



Source: ECDC (2011).

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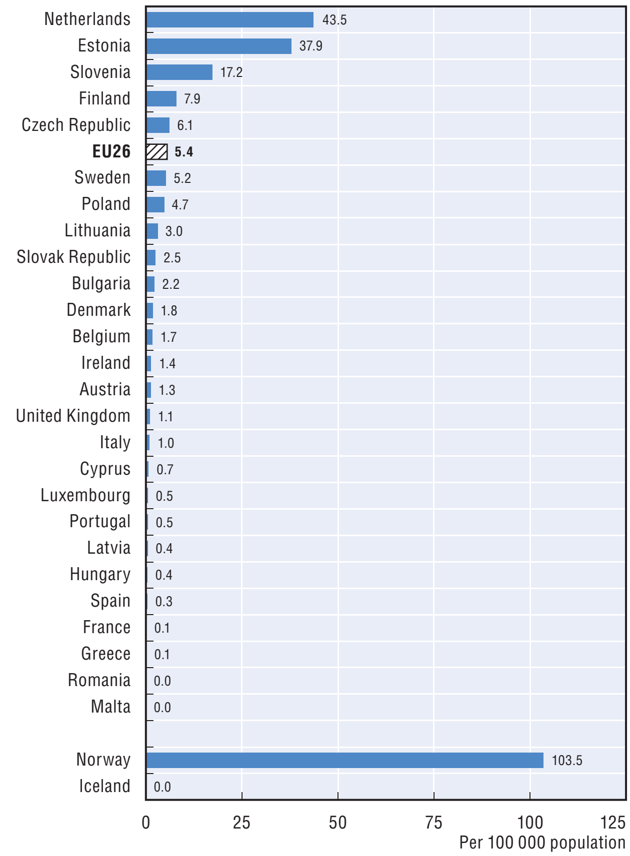
1.11.2. Notification rate of pertussis, 2007-09



Source: ECDC (2011).

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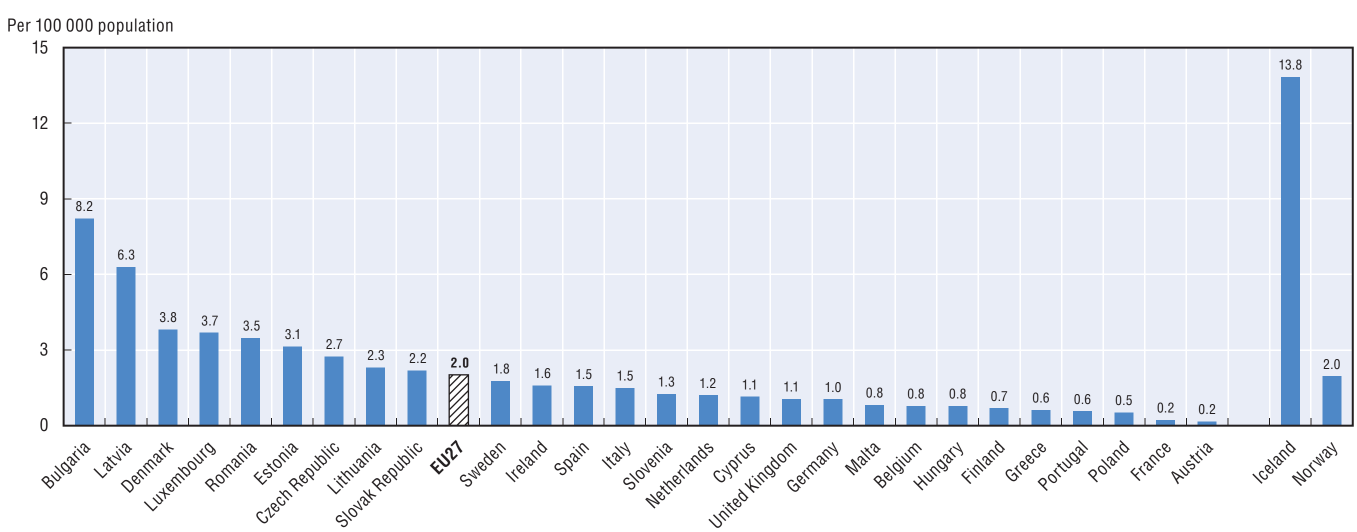
1.11.3. Notification rate of hepatitis B, 2007-09



Source: ECDC (2011).

StatLink http://dx.doi.org/10.1787/888932703487

The first cases of Acquired Immunodeficiency Syndrome (AIDS) were diagnosed more than 30 years ago. The onset of AIDS is caused as a result of HIV (human immunodeficiency virus) infection and can manifest itself as any number of different diseases, such as pneumonia and tuberculosis, as the immune system is no longer able to defend the body, leaving it susceptible to opportunistic infections and tumors. There is a time lag between HIV infection, AIDS diagnosis and death, which can be any number of years depending on the treatment administered. Despite worldwide research, there is no cure currently available. HIV remains a major public health issue in Europe, with continuing transmission.

In 2010, almost 27 000 cases of newly diagnosed HIV infection were reported by EU member states, and another 1 600 cases in the six EU candidate countries, Norway and Switzerland. Estonia had the highest rate of new cases, at 27.8 per 100 000 population, followed by Belgium, Latvia and the United Kingdom, all at over ten (Figure 1.12.1). On average across EU member states, 6.2 new cases of HIV infection were diagnosed per 100 000 population in 2010. One quarter of cases were female, although the ratio varied greatly between countries, from Hungary (16 male cases for each female case) to Sweden (two). Approximately 800 000 persons were living with HIV infection in the European Union in 2010. The predominant mode of transmission of HIV was through men having sex with men (38%), followed by heterosexual contact (24%). However, in certain countries injecting drug use is also a common mode. Approximately 75% of heterosexually acquired HIV infection in Western and Central Europe is among migrants.

The number of newly reported cases of AIDS in EU member states in 2010 was 4 643, representing an average incidence rate of 1.1 per 100 000 population (Figure 1.12.1). Following the first reporting of AIDS in the early 1980s, the number of cases rose rapidly to reach an average of almost four new cases per 100 000 population across EU member states at its peak in the middle of the 1990s, four times the current incidence rate. Public awareness campaigns contributed to steady declines in reported cases through the second half of the 1990s. In addition, the development and greater availability of anti-retroviral drugs, which reduce or slow down the development of the disease, led to a sharp decrease in incidence from 1996 onward.

The highest AIDS incidence rates among EU member states in 2010 were reported in Latvia, followed by Portugal and Spain, at two or more cases per 100 000 population. Spain had the highest incidence rates in the first decade following the outbreak, although there was a sharp decline from 1994 onwards. Incidence rates in Portugal peaked somewhat later, towards the end of the 1990s. AIDS incidence rates in Latvia increased rapidly to the mid-2000s (Figure 1.12.2). Central European countries such as Bulgaria, the Czech and Slovak Republics, Hungary, Poland and Slovenia report the lowest incidence rates of AIDS, although incomplete reporting may lead to underestimates (ECDC and WHO Regional Office for Europe, 2011).

In recent years, the number of AIDS cases reported in the EU has steadily declined. However, continuing transmission of HIV and increases in reported rates in some countries reinforce the need for evidence-based interventions which are adapted to the situation of each country.

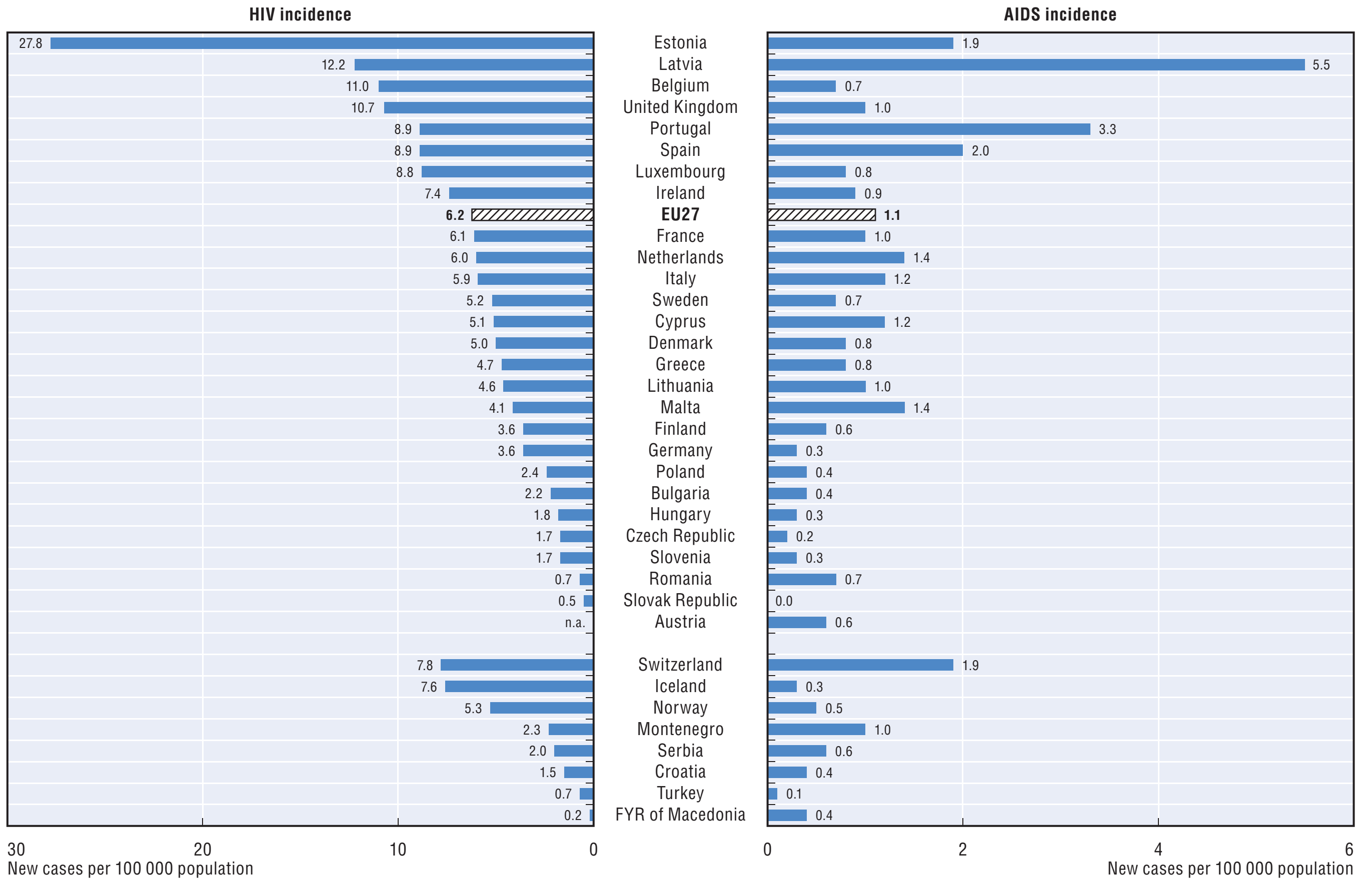
A European Commission Communication details the policy priorities regarding HIV in Europe for 2009-13. The main objectives are to reduce new HIV infections across all European countries by 2013; improve access to prevention, treatment, care and support; and to improve the quality of life of people affected by HIV/AIDS in the European Union and neighbouring countries. The Communication also highlights priority regions and priority groups and emphasises the improvement of knowledge, including surveillance, monitoring, evaluation and research (ECDC, 2012).

Definition and comparability

The incidence rates of HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome) are the number of new cases per 100 000 population at year of diagnosis. However, since newly reported HIV diagnoses may also include persons infected several years ago, the data do not represent real incidence. Underreporting and underdiagnosis also affect incidence rates, and could be as much as 40% in some countries (ECDC, 2011).

Note that data for recent years are provisional due to reporting delays, which can sometimes be for several years. Reporting is voluntary in some countries. Others report regional data only.

1.12.1. HIV and AIDS incidence rates in 2010



Source: ECDC and WHO Regional Office for Europe (2011).

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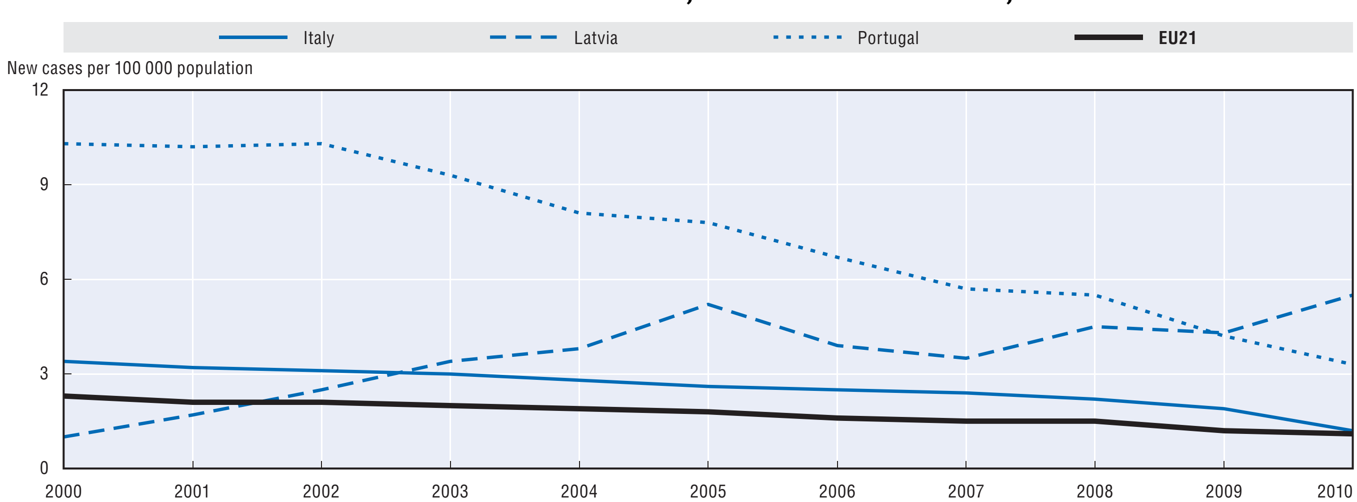
1.12.2. Trends in AIDS incidence rates, selected EU member states, 2000-10



Source: ECDC and WHO Regional Office for Europe (2011).

StatLink http://dx.doi.org/10.1787/888932703525

In 2008, an estimated 2.4 million new cases of cancer (excluding non-melanoma skin cancers) were diagnosed in EU member states (Ferlay *et al.*, 2010), and of these 55% occurred among males and 45% among females. The most commonly diagnosed cancers were prostate, colorectal, breast and lung cancer. The risk of getting cancer before the age of 75 years was 26.5%, or around one in four. However, because the population of Europe is ageing, the rate of new cases of cancer is also expected to increase (EC, 2008b).

Large regional inequalities exist in cancer incidence across European countries. In 2008, the incidence rate for all cancers combined was highest in Northern and Western Europe – Belgium, Denmark, France, Iceland, Ireland and Norway – at over 290 per 100 000 population, but was lower in some Mediterranean countries such as Cyprus, Greece, Malta and Turkey, at less than 220. Rates in Italy were above the EU average of 255 new cases per 100 000 population. Rates in central European countries varied, being highest in the Czech Republic and Hungary (around 290), similar to the EU average in Slovenia and the Slovak Republic (260), and below average in Bulgaria, Poland and Romania and other countries.

Cancer incidence rates are higher for men in all EU member states (Figure 1.13.1). Here too there is great variation between countries; in Spain and Turkey, male incidence rates are 60% higher than female rates, whereas in Cyprus, Denmark and the United Kingdom they are less than 10% higher. In 2008, the average all cancer incidence rate among EU member states was 296 per 100 000 males and 227 per 100 000 females.

In 2008, lung cancer was one of the most common cancers in Europe, being responsible for around 12% of all new cancer diagnoses, 16% for males and 7% for females. Ten of the 15 countries with male rates higher than the EU average were located in central Europe (Figure 1.13.2). Rates in Hungary, Poland, Slovenia were higher than 60 per 100 000 population. Male lung cancer incidence rates in Northern Europe (Finland, Iceland, Norway and Sweden) and some southern European countries (Cyprus, Malta and Portugal) were less than 40 per 100 000 population. Among females, lung cancer incidence was high in Denmark, but also Hungary, Iceland and the Netherlands, at over 25.

Thirty per cent of all new cancer cases among women diagnosed in 2008 were cancers of the breast – the most common form of cancer among women. Incidence rates were high in Denmark and western European countries such as Belgium, France, Ireland and the Netherlands, at over 90 cases per 100 000 population (Figure 1.13.3). Rates in Central and Southern Europe were lower, with Greece, Latvia, Lithuania, Poland, Romania and Turkey all reporting less than 50 new cases per 100 000 population. There has been an increase in measured incidence rates of breast cancer over the past decade, although death rates have declined or remained stable. Survival rates have also increased, due to earlier diagnosis and/or better treatment (see Indicator 4.8 "Screening, survival and mortality for breast cancer").

Prostate cancer has become the most commonly diagnosed cancer among males in most OECD countries, particularly among men over 65 years of age. Prostate cancer comprised one quarter (25%) of all new diagnoses in 2008. Rates were highest in Belgium, France and Ireland and northern European countries (Finland, Iceland, Norway and Sweden) (Figure 1.13.4). Rates were lower in a range of central and southern European countries, including Bulgaria, Greece, Romania and Turkey. At least part of the five-fold difference between countries with the highest and lowest incidence rates is due to under-registration of prostate cancer in some countries, as well as the use of sensitive diagnostic tests for early detection in others (Ferlay *et al.*, 2007). The rise in the reported incidence of prostate cancer in many countries since the 1990s is due largely to the greater use of prostate specific antigen (PSA) tests, although the use of these has also fluctuated because of their cost and uncertainty about the long-term benefit to patients.

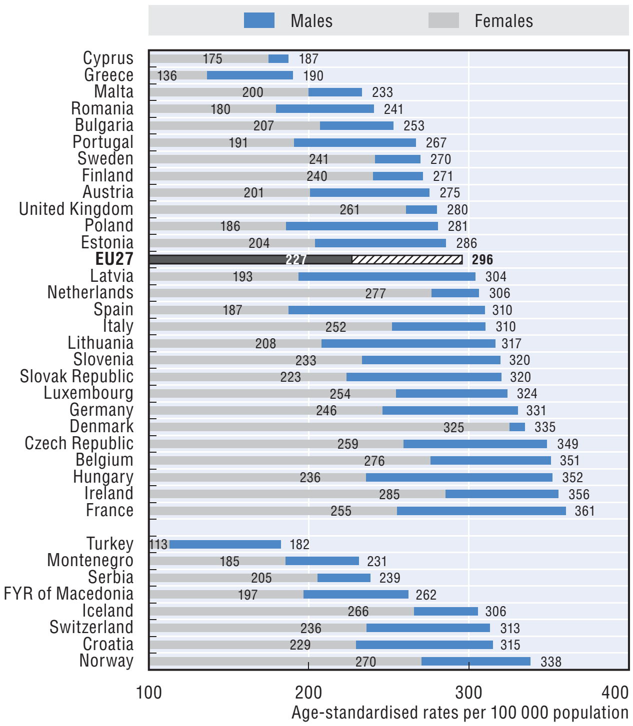
Definition and comparability

Cancer incidence rates are based on numbers of new cases of cancer registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to Segi's world population to remove variations arising from differences in age structures across countries and over time. The source is *GLOBOCAN 2008*, at *http://globocan.iarc.fr/*. GLOBOCAN estimates for 2008 may differ to actual incidence for some countries, due to the projection methods used.

Cancer registration is well established in a majority of EU member states, although the quality and completeness of cancer registry data may vary. In some countries, cancer registries only cover subnational areas. The international comparability of cancer incidence data can also be affected by differences in medical training and practice.

The incidence of all cancers is classified to ICD-10 Codes C00-C97 (excluding non-melanoma skin cancer C44), lung cancer to C33-C34, breast cancer to C50 and prostate cancer to C61.

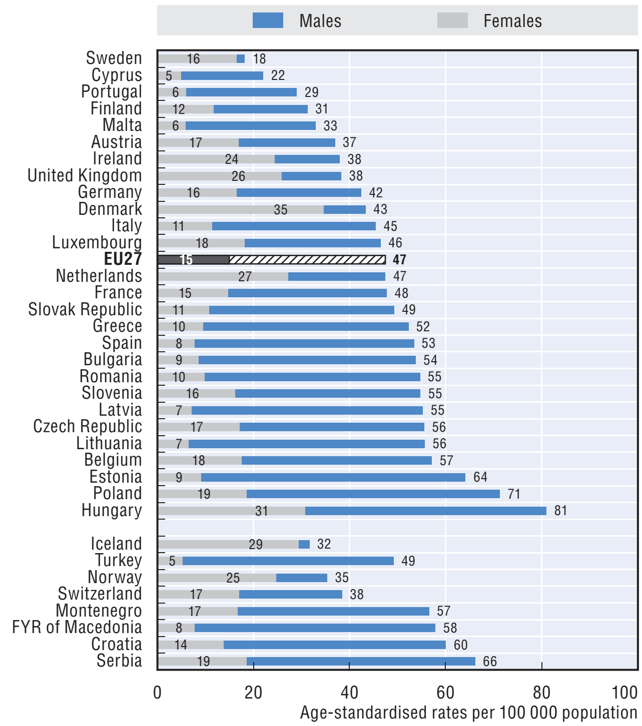
1.13.1. All cancers incidence rates, males and females, 2008



Source: Ferlay *et al.* (2010).

StatLink http://dx.doi.org/10.1787/888932703544

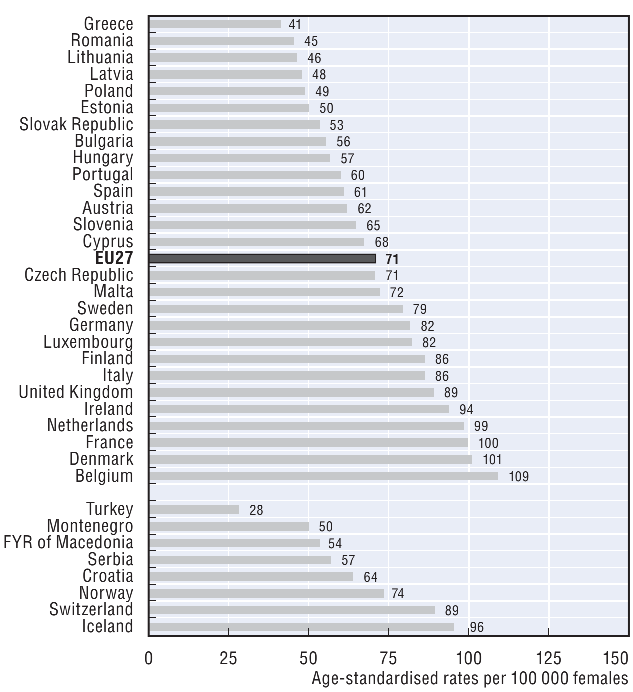
1.13.2. Lung cancer incidence rates, males and females, 2008



Source: Ferlay *et al.* (2010).

StatLink http://dx.doi.org/10.1787/888932703563

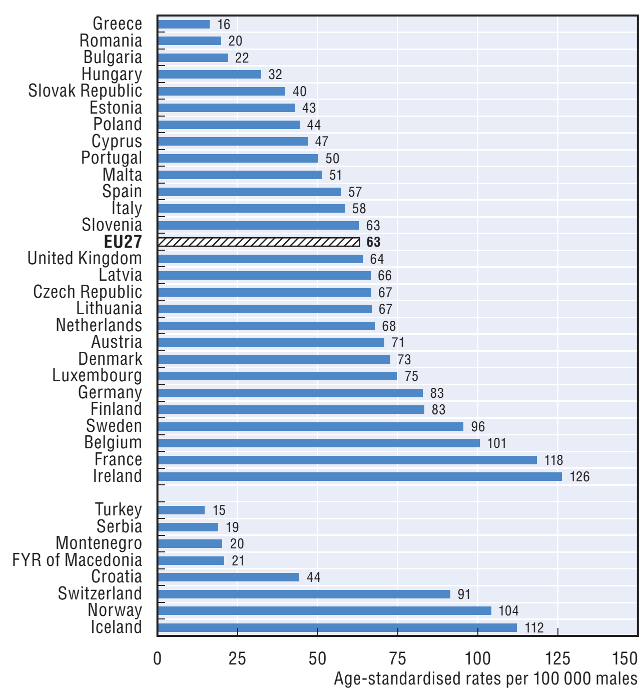
1.13.3. Breast cancer incidence rates, females, 2008



Source: Ferlay *et al.* (2010).

StatLink http://dx.doi.org/10.1787/888932703582

1.13.4. Prostate cancer incidence rates, males, 2008



Source: Ferlay *et al.* (2010).

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Diabetes is a chronic metabolic disease, characterised by high levels of glucose in the blood. It occurs either because the pancreas stops producing the hormone insulin (Type 1 diabetes), or through a combination of the pancreas having reduced ability to produce insulin alongside the body being resistant to its action (Type 2 diabetes). People with diabetes are at a greater risk of developing cardiovascular diseases such as heart attack and stroke if the disease is left undiagnosed or poorly controlled. They also have elevated risks for sight loss, foot and leg amputation due to damage to the nerves and blood vessels, and renal failure requiring dialysis or transplantation.

Diabetes was the principal cause of death of more than 100 000 persons in EU member states in 2011, and is a leading cause of death in most developed countries. However, only a minority of persons with diabetes die from diseases uniquely related to the condition – in addition, about 50% of persons with diabetes die of cardiovascular disease, and 10-20% of renal failure (IDF, 2011).

Diabetes is increasing rapidly in every part of the world, to the extent that it has now assumed epidemic proportions. Estimates suggest that more than 6% of the population aged 20-79 years in EU member states, or 30 million people, had diabetes in 2011, with 42% of diabetic adults aged less than 60 years (IDF, 2011; Whiting *et al.*, 2011). If left unchecked, the number of people with diabetes in EU member states will reach more than 35 million in less than 20 years.

Less than 5% of adults aged 20-79 years in Belgium, Iceland, Luxembourg, Norway and Sweden have diabetes, according to the International Diabetes Federation. This contrasts with Portugal, Cyprus and Poland, where 9% or more of the population of the same age have the disease (Figure 1.14.1). In Europe, abnormal glucose tolerance shows little association with affluence, except in a few countries.

Type 1 diabetes accounts for only 10-15% of all diabetes cases. It is the predominant form of the disease in younger age groups in most developed countries. Based on disease registers and recent studies, the annual number of new cases of Type 1 diabetes in children aged under 15 years is high at 25 or more per 100 000 population in Nordic countries (Finland, Norway and Sweden) (Figure 1.14.2). Bulgaria, Croatia and Switzerland have less than ten new cases per 100 000 population. Alarmingly, there is evidence that Type 1 diabetes is developing at an earlier age among children.

The economic impact of diabetes is substantial. Health expenditure in EU member states in 2011 to treat and prevent diabetes and its complications was estimated at USD 110 billion (IDF, 2011). Around one-quarter of medical expenditure is spent on controlling elevated blood glucose, another quarter on treating long-term complication of diabetes, and the remainder on additional general medical care. Increasing costs reinforce the need to provide quality care for the management of diabetes and its complications.

In April 2012, the European Diabetes Leadership Forum brought together a wide range of stakeholders to produce the Copenhagen Roadmap, outlining initiatives to improve diabetes prevention, early detection and intervention as well as management and control (European Diabetes Leadership Forum, 2012).

Type 2 diabetes is largely preventable. A number of risk factors, such as overweight and obesity and physical inactivity are modifiable, and can also help reduce the complications that are associated with diabetes. But in most countries, the prevalence of overweight and obesity also continues to increase (see Indicator 2.7 "Overweight and obesity among adults").

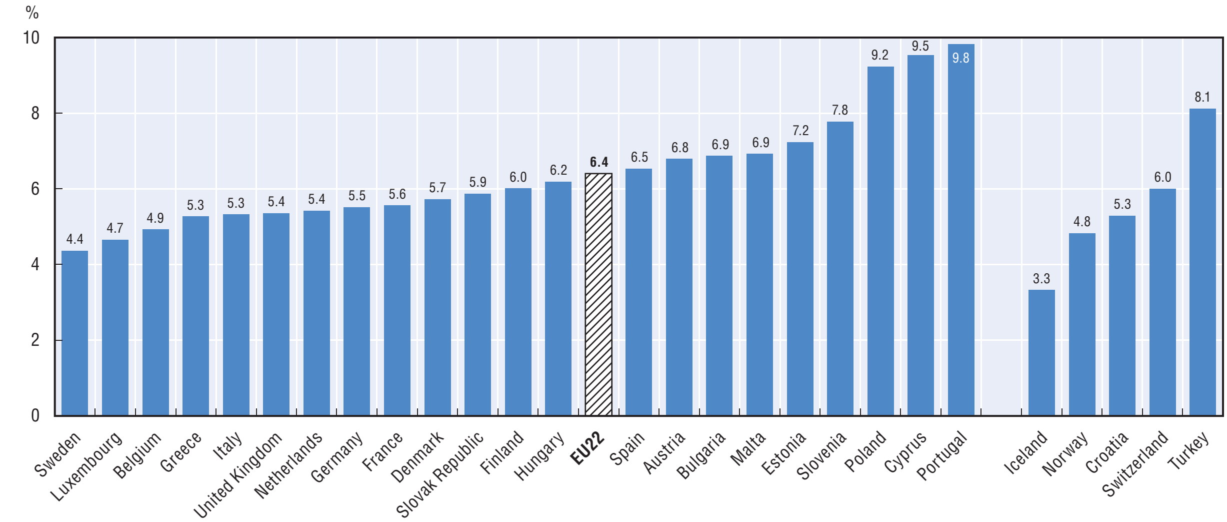
Definition and comparability

The sources and methods used by the International Diabetes Federation for publishing national prevalence estimates of diabetes are outlined in their *Diabetes Atlas*, 5th edition (IDF, 2011; Guariguata *et al.*, 2011). Country-level data were derived from studies published up to April 2011, and were only included if they met several criteria for reliability.

Countries without national data sources are excluded. Studies from several European countries only provided self-reported data on diabetes. Studies only reporting known diabetes were adjusted to account for undiagnosed diabetes, based on sources with available data.

Prevalence rates were adjusted to the World Standard Population to facilitate cross-national comparisons.

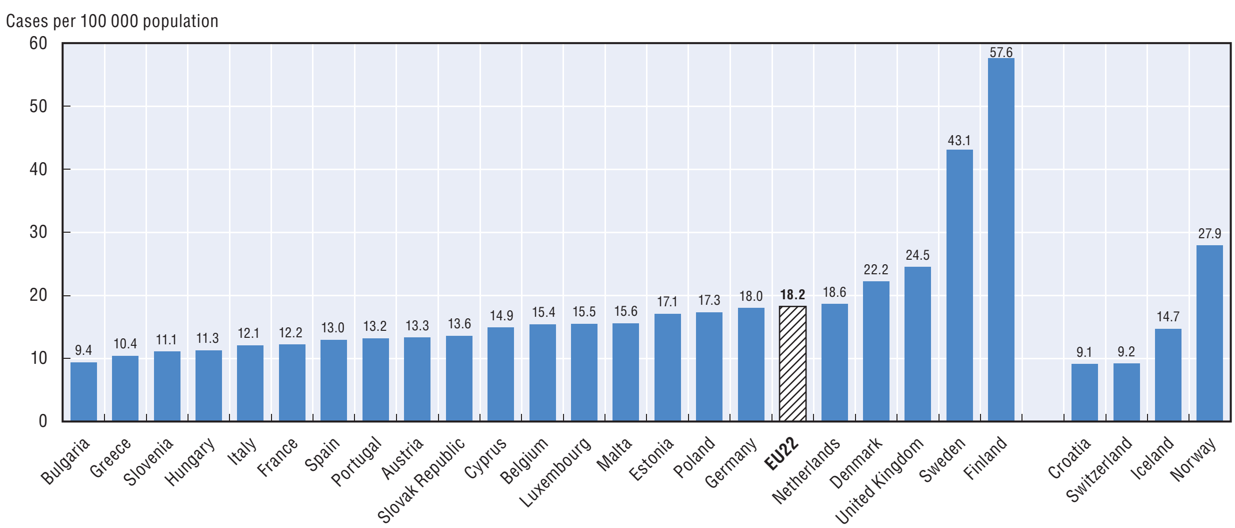
1.14.1. Prevalence estimates of diabetes, adults aged 20-79 years, 2011



Note: The data are age-standardised to the World Standard Population.
Source: IDF (2011).

StatLink http://dx.doi.org/10.1787/888932703620

1.14.2. Incidence estimates of Type 1 diabetes, children aged 0-14 years, 2011



Source: IDF (2011).

StatLink http://dx.doi.org/10.1787/888932703639

Dementia describes a variety of brain disorders which progressively lead to brain damage, and cause a gradual deterioration of the individual's functional capacity and social relations. It is one of the most important causes of disability among the elderly, placing a large burden not only on sufferers, but also on carers. Alzheimer's disease is the most common form of dementia, representing about 60% to 80% of cases. Successive strokes that lead to multi-infarct dementia are another common cause. Currently, there is no treatment that can halt dementia, but pharmaceutical drugs and other interventions can help treat symptoms.

In 2009, there were an estimated 6.8 million people aged 60 years and over suffering from dementia in EU member states, accounting for around 6% of the population in that age group, according to estimates by Wimo *et al.* (2010) (Figure 1.15.1). France, Italy, Spain, Sweden and Switzerland had the highest prevalence, with 6.3% to 6.6% of the population aged 60 years or older. This contrasts with less than 5% in Bulgaria, the Czech and Slovak Republics, Malta and Romania, as well as the Former Yugoslav Republic of Macedonia, Montenegro and Turkey.

Clinical symptoms of dementia usually begin after the age of 60, and the prevalence increases markedly with age (Figure 1.15.2). The disease affects more women than men. In Europe, 14% of men and 16% of women aged 80-84 years were estimated as having dementia in 2009, compared to less than 4% among those under 75 years of age (Alzheimer Europe, 2009). For the very elderly aged 90 years and over, the figures rise to 31% of men and 47% of women. Early-onset dementia among people aged younger than 65 years is rare; they comprise less than 2% of the total number of people with dementia.

People with Alzheimer's disease and other dementias are high users of long-term care services. Wimo and colleagues (2010) used cost-of-illness studies from different countries to estimate the direct costs of dementia, including only the resources used to care for people with dementia. In 2009, the direct costs of dementia were estimated at 0.5% of GDP on average among EU member states.

As the number of older persons suffering from dementia is already large, and is expected to grow in the future, dementia has become a health policy priority in many countries. National policies typically involve measures to improve early diagnosis, promote quality of care for people with dementia, and support informal caregivers (Wortmann, 2009; Juva, 2009; Ersek *et al.*, 2009; Kenigsberg, 2009).

In January 2011, the European Parliament adopted a resolution calling for dementia to be made an EU health priority and urging member states to develop dedicated national plans and strategies (only a small number of countries including France and the United Kingdom, along with Norway, currently have national strategies in place). These strategies should address the social and health consequences, as well as services and support for sufferers and their families.

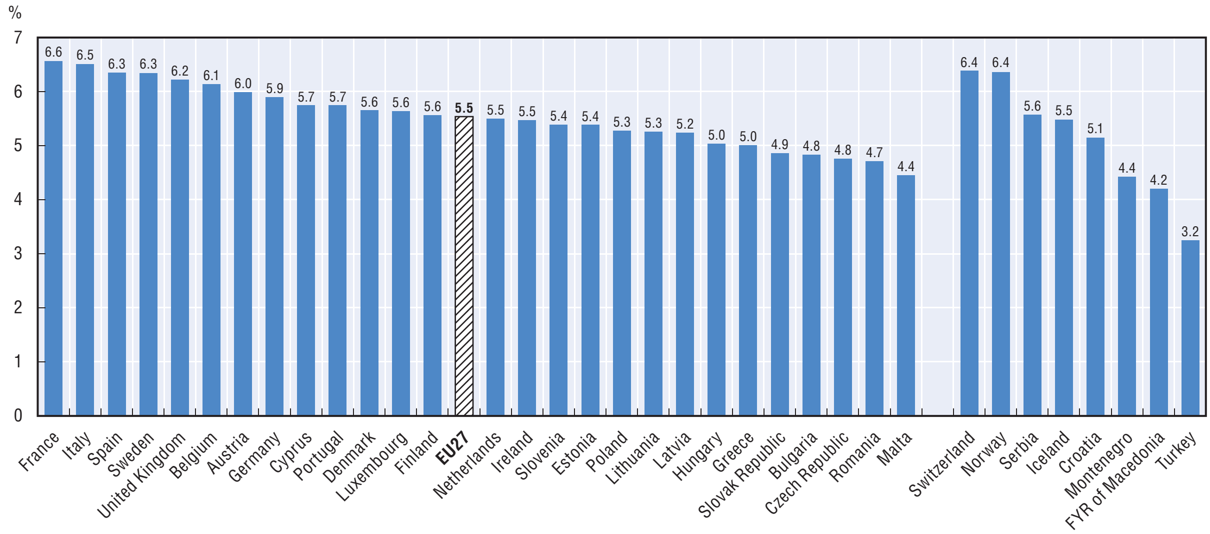
A Joint Action between European member states aims to improve knowledge on dementia and its consequences and to promote the exchange of information to preserve health, quality of life, autonomy and dignity of people living with dementia and their carers (ALCOVE, 2012).

Definition and comparability

Dementia prevalence rates are based on estimates of the total number of persons aged 60 years and over living with dementia divided by the size of the corresponding population. Estimates by Wimo *et al.* (2010) are based on previous national epidemiological studies and meta-analyses.

Given the divergence in scale and accuracy of the sources used across countries, the estimates should be used with caution.

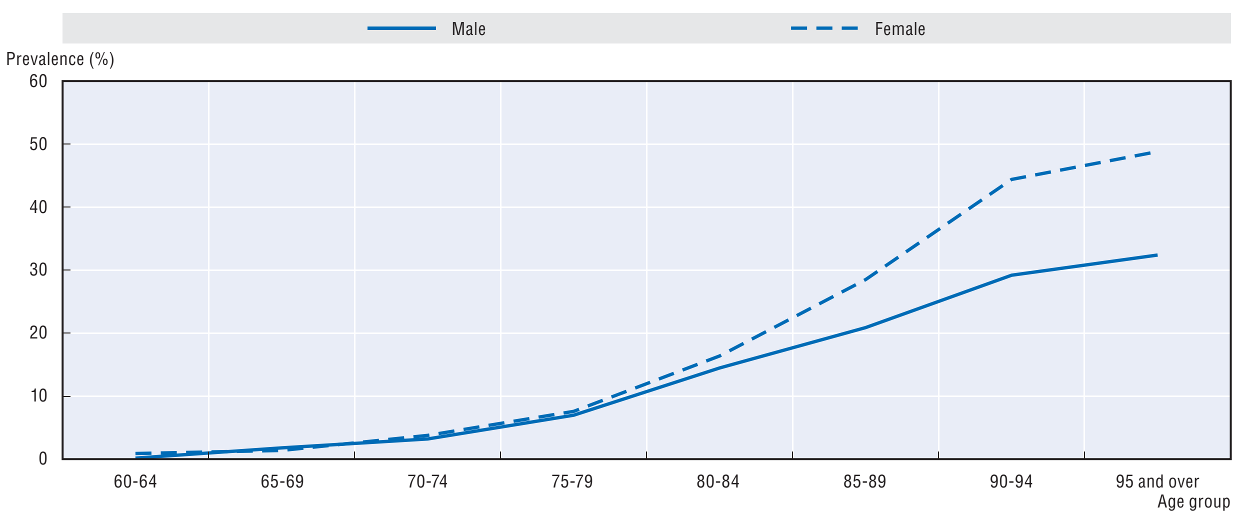
1.15.1. Prevalence of dementia, population aged 60 years and over, 2009



Source: Wimo *et al.* (2010).

StatLink http://dx.doi.org/10.1787/888932703658

1.15.2. Age- and sex-specific prevalence of dementia in EU member states, 2009



Source: Alzheimer Europe (2009).

StatLink http://dx.doi.org/10.1787/888932703677

Asthma is a disease of the bronchial tubes characterised by "wheezing" during breathing, shortness of breath or coughing. Asthma is the single most common chronic disease among children, and also affects many adults. It is a significant public health problem and a high-burden disease for which prevention is partly possible and treatment can be effective. Its causes are not well understood, but effective medicines are available to help in maintaining quality of life and avoiding disability and death (The Union/ISAAC, 2011).

Chronic obstructive pulmonary disease (COPD) – the term now used to describe chronic bronchitis and emphysema – is another high-burden disease causing disability and impairing quality of life, as well as generating high costs. COPD is characterised by difficult breathing that is not fully reversible and usually progressive. Patients are often smokers or ex-smokers, and their symptoms rarely develop before age 40. COPD is among the leading causes of chronic morbidity and mortality in the EU. Approximately 200 000 to 300 000 people die each year in Europe because of COPD, and among respiratory diseases, it is the leading cause of lost work days (European Lung Foundation, 2012). COPD is preventable and treatable. Proper management of both asthma and COPD in primary care settings can reduce exacerbation and costly hospitalisation (see Indicator 4.1 "Avoidable admissions: Respiratory diseases").

In response to a health survey question asking whether adults aged 15 years and over had asthma during the last 12 months, prevalence ranged from 1.6% in Romania, to 7.0% in France (Figure 1.16.1). Rates also exceeded 5% in Germany, Hungary and Malta, and were less than 3% in Bulgaria, Estonia, Latvia, Romania and the Slovak Republic. Among 17 EU member states the average prevalence rate was 3.8%. Asthma was more commonly reported by females (4.3% *vs.* 3.3% for males). Slovenia is an exception, with a slightly higher male prevalence. The largest female-male disparity was in Turkey (5% *vs.* 2.5%), whereas no disparity existed in Cyprus (both 3.9%).

The reported prevalence of COPD among adults aged 15 years and over ranged from 1.2% in Malta, to 4.7% in Hungary, and 6.2% in Turkey (Figure 1.16.2). Among 16 EU member states, average prevalence was 3.1%, with slightly higher prevalence among females (3.5% *vs.* 2.9%). In Cyprus, France, Romania and Spain, however, prevalence was higher among males. The prevalence of COPD also increases with age.

Persons with low levels of education are more than twice as likely to report COPD than those with high levels (Figure 1.16.3). Large disparities in COPD rates between persons with higher and lower levels of education are evident in Belgium, Romania, Spain and Estonia. Persons from low socio-economic groups also report higher rates of smoking, which is the major risk factor for COPD.

The lower reported asthma and COPD prevalence among new EU member states in all likelihood reflects underdiagnosis and undertreatment, although rates in these countries have increased sharply in recent years, possibly reflecting greater awareness of this condition along with changes in diagnostic practice (Braman, 2006; The Union/ISAAC, 2011).

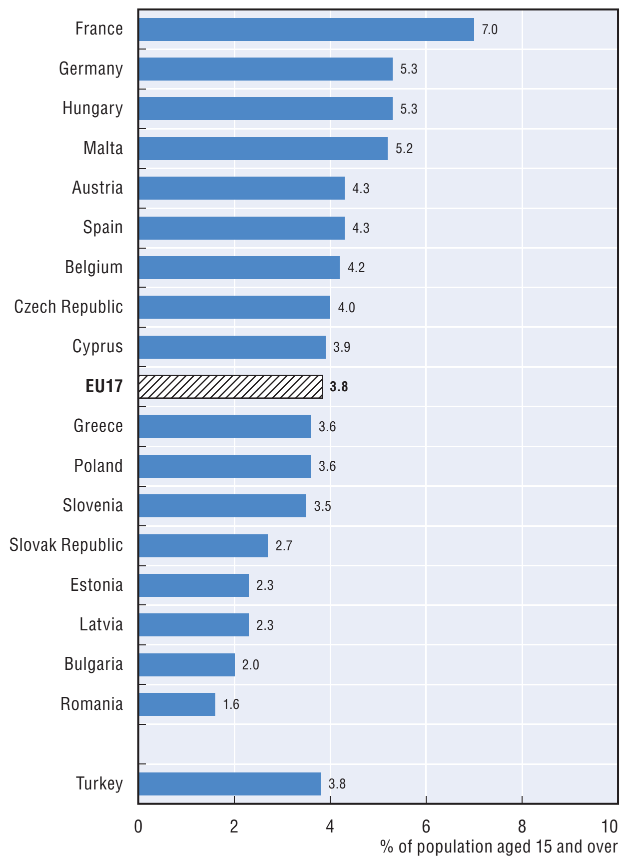
A number of EU actions reflect an increased focus on asthma and COPD. These include the Council Conclusions on prevention, early diagnosis and treatment of chronic respiratory diseases in children (12/2011), and the Commission Reflection Paper on Chronic Diseases (03/2012). Both aim to identify issues, gaps and suggestions for action to improve current policies and activities on chronic diseases such as asthma and COPD.

Definition and comparability

Estimates of the prevalence of asthma and chronic obstructive pulmonary disease (COPD) are derived from European Health Interview Survey questions, conducted in many EU member states between 2006 and 2010. Typically, respondents were asked: "Do you have or have you ever had any of the following diseases or conditions? 1) Asthma (allergic asthma included) (yes/no). 2) Chronic bronchitis, chronic obstructive pulmonary disease, emphysema (yes/no). If yes: Was this disease/condition diagnosed by a medical doctor? (yes/no). Have you had this disease/condition in the past 12 months? (yes/no)."

The same survey also asked for information on age, sex and educational level. Data rely on self-report, and are subject to errors in recall. Data are not age-standardised, with aggregate country estimates representing crude rates among respondents aged 15 years and over. The data, therefore, exclude the prevalence of childhood asthma (age 0-14 years).

1.16.1. Self-reported asthma, 2008 (or nearest year)



Source: *Eurostat Statistics Database.*

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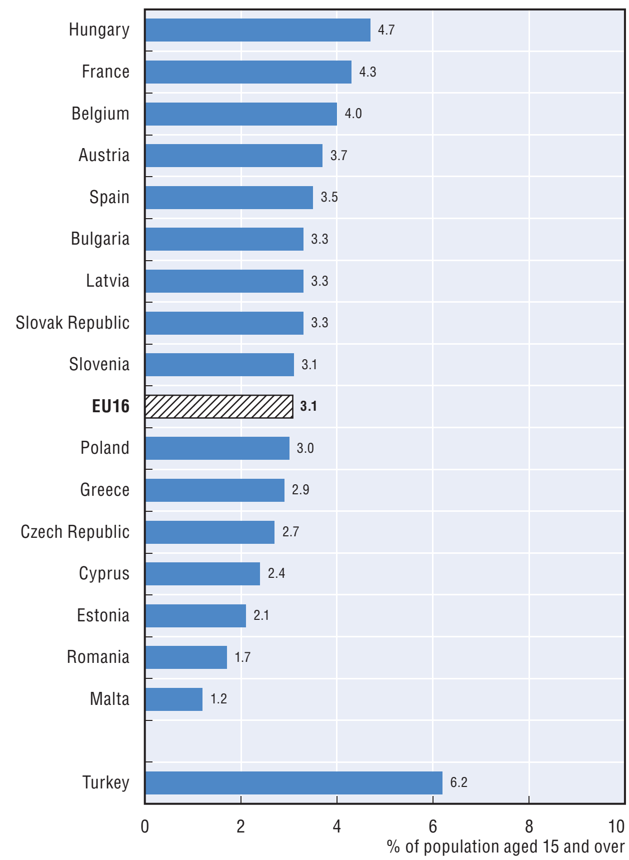
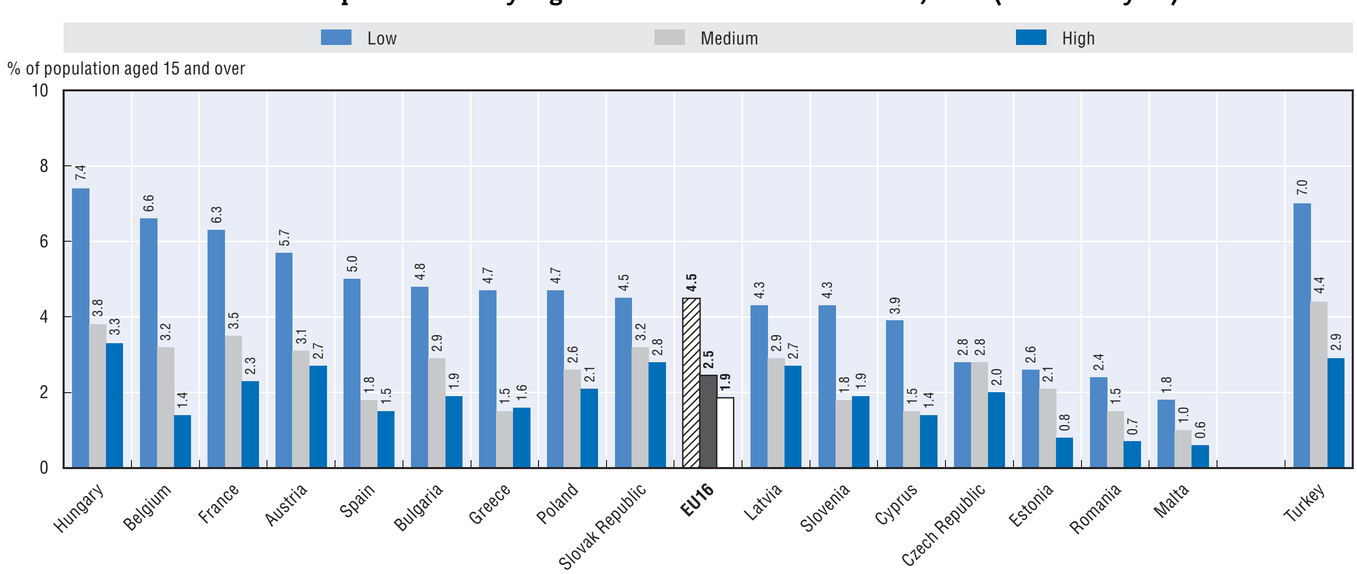
1.16.2. Self-reported COPD, 2008 (or nearest year)



Source: *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932703715

1.16.3. Self-reported COPD by highest attained level of education, 2008 (or nearest year)



Source: *Eurostat Statistics Database.*

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Chapter 2

Determinants of health

Regular smoking or excessive drinking in adolescence has both immediate and long-term health consequences. Children who establish smoking habits in early adolescence increase their risk of cardiovascular diseases, respiratory illnesses and cancer. They are also more likely to experiment with alcohol and other drugs. Alcohol misuse is itself associated with a range of social, physical and mental health problems, including depressive and anxiety disorders, obesity and accidental injury (Currie *et al.*, 2012).

Results from the Health Behaviour in School-aged Children (HBSC) surveys, a series of collaborative cross-national studies conducted in most EU member states, allow for monitoring of smoking and drinking behaviours among adolescents. Across all EU member states who responded to the survey, the proportions of 15-year-old boys and girls who smoke are similar, but more boys get drunk.

Boys and girls in Austria, Croatia, the Czech Republic, Hungary, Latvia and Lithuania smoke most, with more than 25% reporting that they smoke at least once a week (Figure 2.1.1). In contrast, less than 15% of 15-year-olds in Nordic countries (Denmark, Iceland, Norway and Sweden), Ireland, Poland, Portugal and the United Kingdom smoke weekly. A number of countries report higher rates of smoking for girls, although only in the Czech Republic and Spain is the difference in excess of 5%. Smoking is more prevalent among boys in Latvia, Lithuania and Romania, where the difference is 10% or greater.

Drunkenness at least twice in their lifetime is reported by more than 40% of 15-year-olds in the Czech Republic, Denmark, Estonia, Finland, Hungary, Latvia, Lithuania, Slovenia and the United Kingdom (Figure 2.1.2). Much lower rates (less than 20%) are reported in Italy, Luxembourg and the Netherlands, as well as Iceland and the Former Yugoslav Republic of Macedonia. Across all surveyed EU member states, boys are more likely than girls to report repeated drunkenness (36% *vs.* 31%). Croatia, Hungary, Lithuania and Romania have the biggest differences, with rates of alcohol abuse among boys at least 10% higher than those of girls. In four countries, Finland, Spain, Sweden and the United Kingdom, around 5% more girls than boys report repeated drunkenness.

Recent smoking and drinking rates for 15-year-old boys and girls are compared in Figure 2.1.3. Countries above the 45 degree line have higher rates for boys, and countries below the line higher rates for girls. Countries with higher rates of smoking among boys also tend to report higher rates for girls, with the same finding for drinking rates.

Rates of smoking and drunkenness are also available for 13-year-olds (Currie *et al.*, 2012). At this age, around 5% of children surveyed across the entire European Union smoke weekly, and in the Czech Republic, Estonia, Latvia, Romania and the Slovak Republic, the figure is higher at 8% or more. Over one in ten children in a range of countries including Croatia, the Czech Republic, Greece, Italy, Romania, the Slovak Republic and the United Kingdom have experienced drunkenness at least twice. In Croatia, the Czech Republic, Greece, Italy and Romania, high rates of repeated drunkenness at 13 are seen for boys.

Risk-taking behaviours among adolescents are falling, with regular smoking for both boys and girls and drunkenness rates for boys showing some decline from the levels of the late 1990s (Figure 2.1.4). Levels of smoking for both sexes are at their lowest for a decade with, on average, fewer than one in five children of either sex smoking regularly. However, increasing rates of smoking and drunkenness among adolescents in Estonia, Hungary, Latvia, Lithuania and Poland are cause for concern.

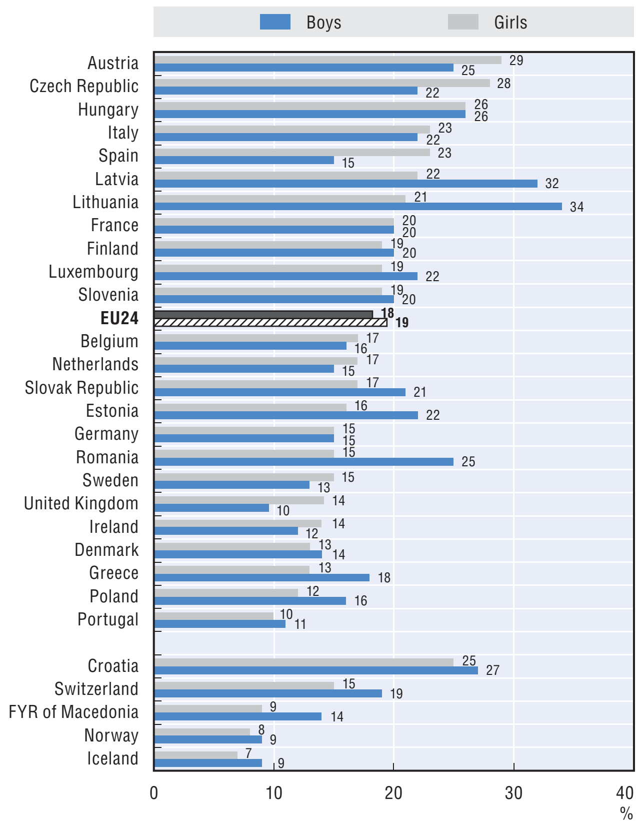
Definition and comparability

Estimates for smoking refer to the proportion of 15-year-old children who self-report smoking at least once a week. Estimates for drunkenness record the proportions of 15-year-old children saying they have been drunk twice or more in their lives.

Data for 24 European Union member states and five other countries are from the Health Behaviour in School-aged Children (HBSC) surveys undertaken between 1993-94 and 2009-10. Data are drawn from school-based samples of 1 500 in each age group (11-, 13- and 15-year-olds) in most countries. Turkey was included in the 2009-10 HBSC survey, but children were not questioned on drinking and smoking.

2.1.1. Smoking among 15-year-olds, 2009-10

Smoking at least once a week

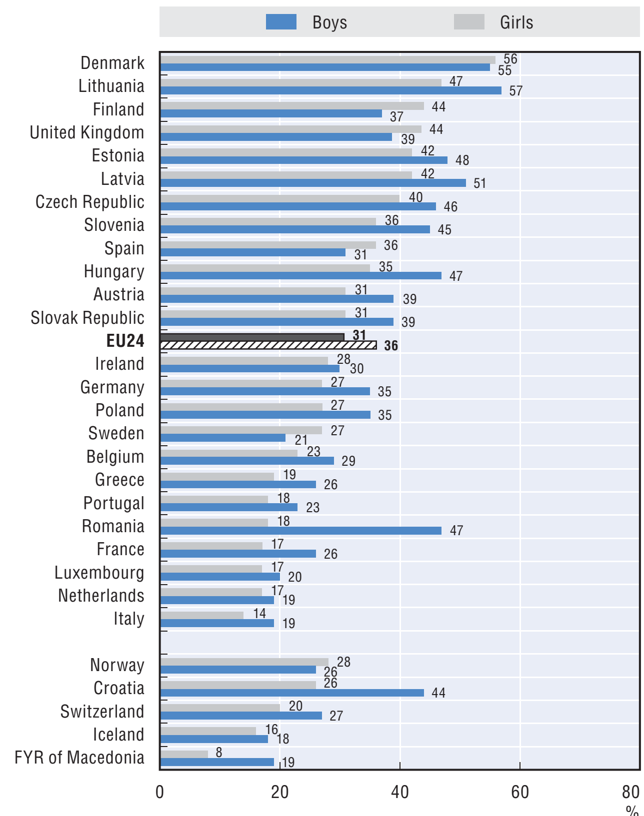


Source: Currie et al. (2012).

StatLink http://dx.doi.org/10.1787/888932703753

2.1.2. Drunkenness among 15-year-olds, 2009-10

Drunk at least twice in life



Source: Currie et al. (2012).

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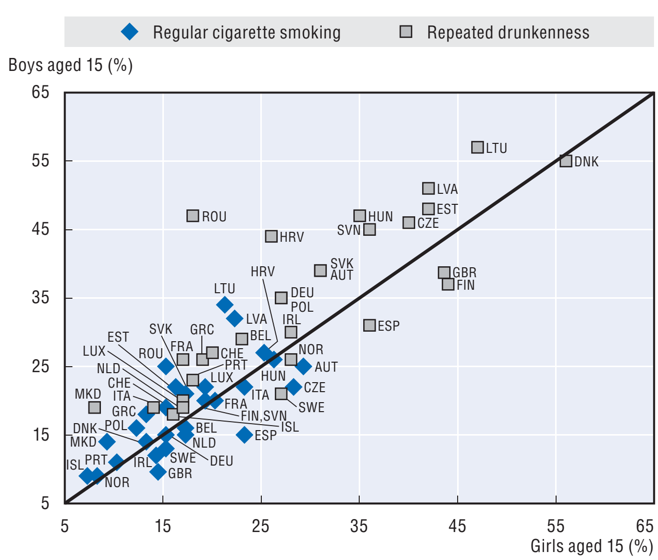
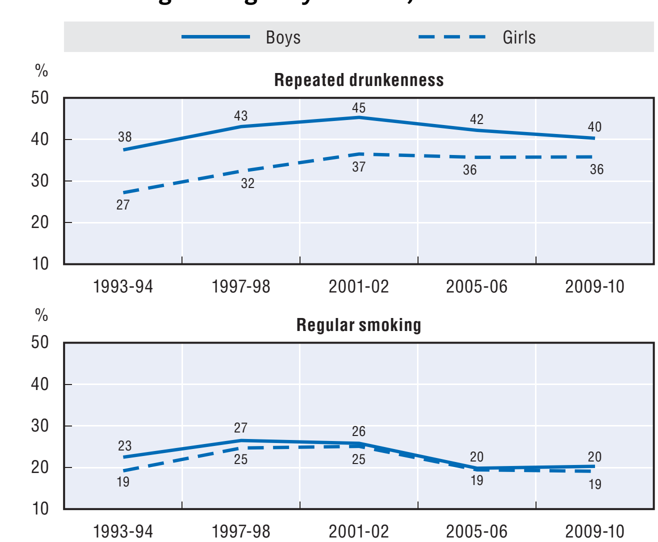
2.1.3. Risk behaviours of 15-year-olds by sex, 2009-10



Source: Currie et al. (2012).

StatLink http://dx.doi.org/10.1787/888932703791

2.1.4. Trends in repeated drunkenness and regular smoking among 15-year-olds, 14 EU countries



Source: Currie et al. (2000); Currie et al. (2004); Currie et al. (2008); Currie et al. (2012); WHO (1996).

StatLink http://dx.doi.org/10.1787/888932703810

Children who are overweight or obese are at greater risk of poor health in adolescence and also in adulthood. Among young people, orthopaedic problems and psychosocial problems such as low self-image, depression and impaired quality of life can result from overweight. Excess weight problems in childhood are associated with an increased risk of being an obese adult, at which point cardiovascular disease, diabetes, certain forms of cancer, osteoarthritis, a reduced quality of life and premature death become health concerns (Sassi, 2010; Currie *et al.*, 2012).

Evidence suggests that even if excess childhood weight is lost, adults who were obese children retain an increased risk of cardiovascular problems. And although dieting can combat obesity, children who diet are at a greater risk of putting on weight following periods of dieting. Eating disorders, symptoms of stress and postponed physical development can also be products of dieting (WHO Europe, 2009).

Among 15-year-olds in EU member states, boys tend to report excess weight more often than girls; one-in-six boys and one-in-ten girls reported being overweight or obese in 2009-10 (Figure 2.2.1). More than 15% of adolescents in southern European countries (Greece, Italy, Portugal and Spain), as well as in Croatia, Iceland, Luxembourg and Slovenia report being overweight or obese. Fewer than 10% of children in Latvia and Lithuania, as well as in Denmark, France and the Netherlands report overweight or obesity.

Boys' and girls' perceptions of having weight problems often differ from their reported weight. Among 15-year-olds, 40% of girls and 22% of boys across EU member states thought they were too fat. Further, there is also no clear association between weight problems and weight reduction behaviours, with 22% of girls and 9% of boys reporting that they engage in weight-reduction behaviour; twice the rate of girls who report being overweight or obese, but only half that of boys.

Young people who report being overweight are more likely to miss eating breakfast, are less physically active, and spend more time watching television (Currie *et al.*, 2012).

Reported rates of excess weight have increased slightly over the past decade in most EU member states (Figure 2.2.2). Average reported rates of overweight and obesity across the EU increased between 2001-02 and 2009-10 from 11% to 13% of 15-year-olds. The largest increases during the eight year period were found in the Czech Republic, Estonia, Poland, Romania and Slovenia, all greater than 5%. Only Denmark and the United Kingdom report any significant reductions in the proportion of overweight or obese at age 15 between 2001-02 and 2009-10, although non-response rates to questions about self-reported height and weight require cautious interpretation.

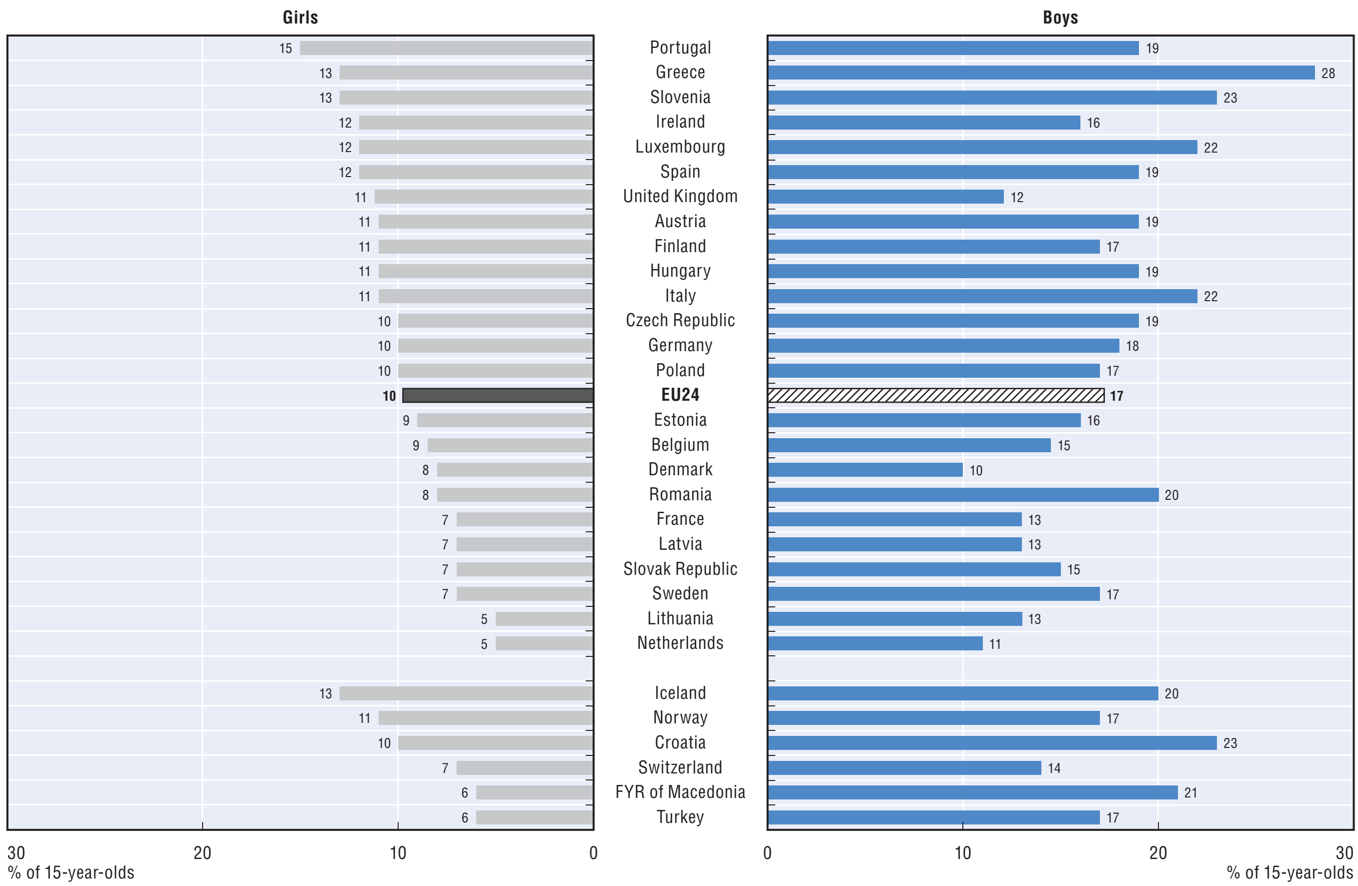
Childhood is an important period for forming healthy behaviours, and the increased focus on obesity at both national and international levels has stimulated the implementation of many community-based initiatives in European countries in recent years. Studies show that locally focused interventions, targeting children to 12 years of age can be effective in changing behaviours. Schools provide an opportunity to ensure that children understand the importance of good nutrition and physical activity, and can benefit from both. Teachers and health professionals are often involved as providers of health and nutrition activities, and the most frequent community-based initiatives target professional training, the social or physical environment and actions for parents (Bemelmans *et al.*, 2011).

Definition and comparability

Estimates of overweight and obesity are based on body mass index (BMI) calculations using child self-reported height and weight. Overweight and obese children are those whose BMI is above a set of age- and sex-specific cut-off points (Cole *et al.*, 2000). Self-reported height and weight is subject to under-reporting, missing data and error, and requires cautious interpretation.

Data for 24 EU member states and six other countries are from the Health Behaviour in School-aged Children (HBSC) surveys undertaken between 2001-02 and 2009-10. Data are drawn from school-based samples of 1 500 in each age group (11-, 13- and 15-year-olds) in most countries.

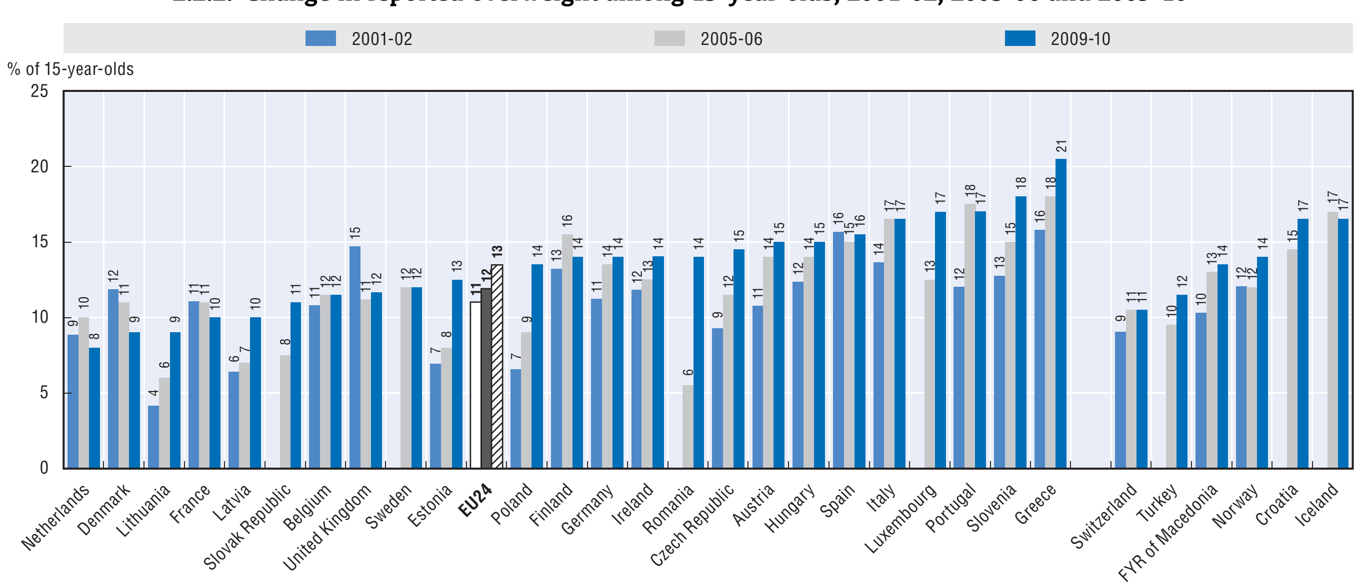
2.2.1. Reported overweight (including obesity) among 15-year-olds, 2009-10



Source: Currie *et al.* (2012), based on HBSC survey.

StatLink http://dx.doi.org/10.1787/888932703829

2.2.2. Change in reported overweight among 15-year-olds, 2001-02, 2005-06 and 2009-10



Source: Currie *et al.* (2004); Currie *et al.* (2008); Currie *et al.* (2012), based on HBSC surveys.

StatLink http://dx.doi.org/10.1787/888932703848

Nutrition is important for children's development and long-term health. Eating fruit during adolescence, for example, in place of high-fat, sugar and salt products, can protect against health problems such as obesity, diabetes, and heart problems. Moreover, eating fruit and vegetables when young can be habit forming, promoting healthy eating behaviours for later life.

A number of factors influence the amount of fruit consumed by adolescents, including family income, the cost of alternatives, preparation time, whether parents eat fruit, and the availability of fresh fruit which can be linked to the country or local climate (Rasmussen *et al.*, 2006). Fruit and vegetable consumption have a high priority as indicators of healthy eating in most European countries.

In European countries in 2009-10, only around one-third of girls and one-quarter of boys aged 15 years ate at least one piece of fruit daily, according to the latest Health Behaviour in School-aged Children (HBSC) survey (Currie *et al.*, 2012). Overall, boys in Denmark, Portugal and Italy, and girls in Denmark, Norway, the Former Yugoslav Republic of Macedonia and Switzerland had the highest rates of daily fruit consumption. Fruit consumption was relatively low in Estonia, Latvia, Lithuania and Poland, and in contrast to other Nordic countries, Finland and Sweden, with rates of around one-in-four among girls and one-in-five for boys (Figure 2.3.1).

In all countries, girls were more likely to eat fruit daily. The gap between the fruit consumption of boys and girls is largest at age 15 for most countries, with the greatest disparities found in Denmark, Finland, Germany and Norway.

Daily vegetable eating was also reported by around one-third of girls and quarter of boys on average across EU member states in 2009-10 (Figure 2.3.2). Girls in Belgium most commonly ate vegetables daily (60%), followed by Denmark, France and Switzerland (45-50%). Belgium also led the way for boys (46%), with close to 40% in France and Ireland. Eating vegetables daily was less common in Austria, Estonia and Spain, as well as in Croatia (girls), and Finland and Latvia (boys).

Similar to fruit eating, in all countries a higher proportion of girls ate vegetables daily. The disparity was especially large in Finland, where 35% of girls, but only 14% of boys reported eating vegetables each day. Denmark and Germany also had large differences, although rates were comparatively high for both boys and girls in Denmark.

In most countries, it was more common for 15-year-olds to report eating fruit daily, rather than vegetables (Figure 2.3.3). However, in a number of western European countries, including Belgium, the Netherlands, Sweden, Ireland and France, daily vegetable eating was more common.

Average reported rates of daily vegetable consumption across EU member states showed some increase between 2001-02 and 2009-10, for both girls and boys (Figure 2.3.3). Fruit consumption however was less clear, with a small increase among girls, while the rates for boys have remained largely unchanged.

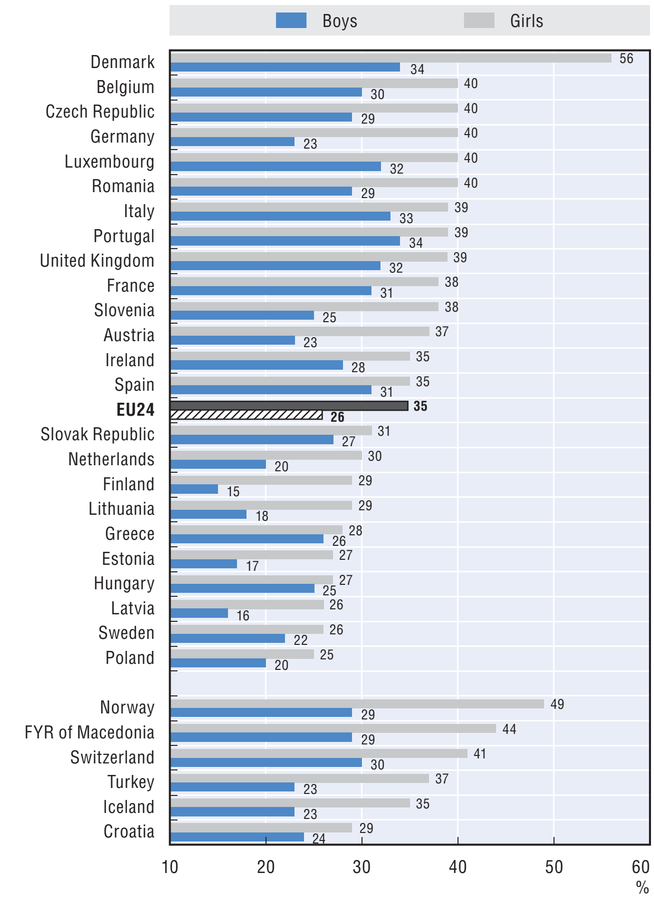
Effective and targeted strategies are required to ensure that children are eating enough fruit and vegetables to conform with recommended national dietary guidelines. A study of European school children found that they generally hold a positive attitude toward fruit intake, and report good availability of fruit at home, but lower availability at school and during leisure time. Increased accessibility to fruit and vegetables, combined with educational and motivational activities can help in increasing both fruit and vegetable consumption (Sandvik *et al.*, 2005).

Definition and comparability

Dietary habits are measured here in terms of the proportions of children who report eating fruit and vegetables at least every day or more than once a day. In addition to fruit and vegetables, healthy nutrition also involves other types of foods.

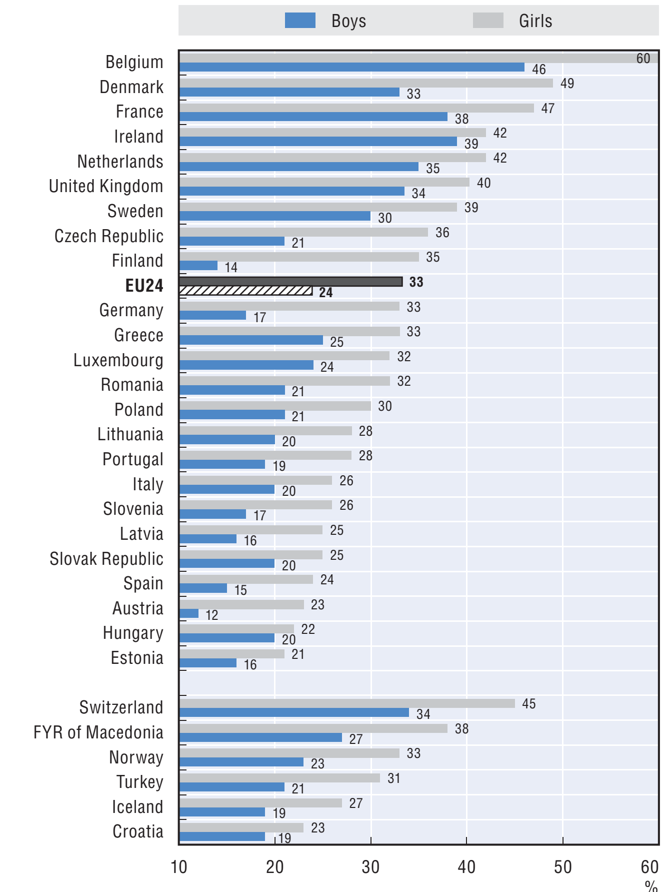
Data for 24 EU member states and six other countries are from the Health Behaviour in School-aged Children (HBSC) surveys undertaken between 2001-02 and 2009-10. Data are drawn from school-based samples of 1 500 in each age group (11-, 13- and 15-year-olds) in most countries.

2.3.1. Daily fruit eating among 15-year-olds, 2009-10



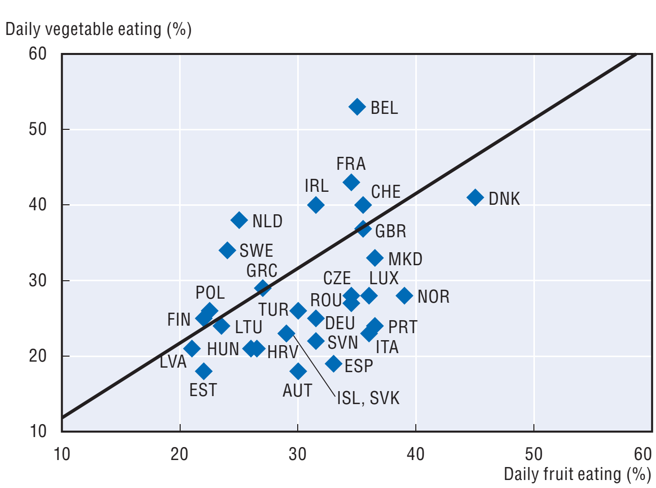
Source: Currie et al. (2012).
StatLink http://dx.doi.org/10.1787/888932703867

2.3.2. Daily vegetable eating among 15-year-olds, 2009-10



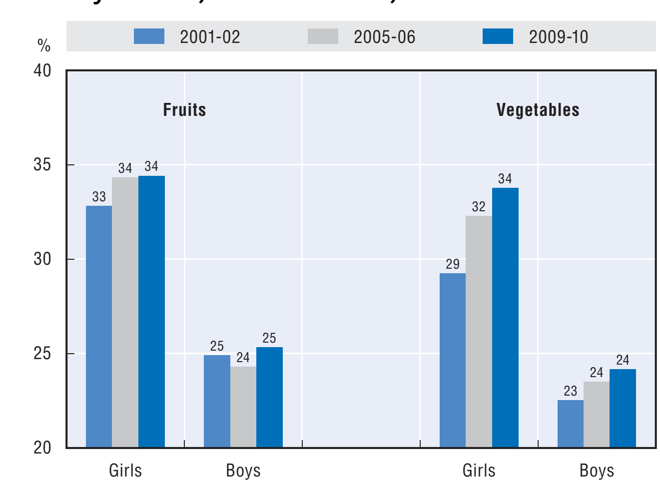
Source: Currie et al. (2012).
StatLink http://dx.doi.org/10.1787/888932703886

2.3.3. Daily fruit and vegetable eating among 15-year-olds, 2009-10



Source: Currie et al. (2012).
StatLink http://dx.doi.org/10.1787/888932703905

2.3.4. Trends in daily fruit and vegetable eating among 15-year-olds, 21 EU countries, 2001-02 to 2009-10



Source: Currie et al. (2004); Currie et al. (2008); Currie et al. (2012).
StatLink http://dx.doi.org/10.1787/888932703924

Undertaking physical activity in adolescence is beneficial for health, and can set standards for adult physical activity levels, thereby influencing health outcomes in later life. Research supports the role that physical activity has in child and adolescent development, learning and well-being, and in the prevention and treatment of a range of youth health issues including asthma, mental health, bone health and obesity. More direct links to adult health are found between physical activity in adolescence and its effect on overweight and obesity and related diseases, breast cancer rates and bone health in later life. The health effects of adolescent physical activity are sometimes dependent on the activity type, *e.g.* water physical activities in adolescence are effective in the treatment of asthma, and exercise is recommended in the treatment of cystic fibrosis (Hallal *et al.*, 2006; Currie *et al.*, 2012).

One extensive study recommends that children participate in at least 60 minutes of moderate-to-vigorous physical activity daily, although evidence suggests that many children do not meet these guidelines (Strong *et al.*, 2005; Borraccino *et al.*, 2009; Hallal *et al.*, 2012). Some of the factors influencing the levels of physical activity undertaken by adolescents include the availability of space and equipment, the child's present health conditions, their school curricula and other competing pastimes.

Only one-in-five children in EU member states report that they undertake moderate-to-vigorous exercise regularly, according to results from the 2009-10 HBSC survey (Figure 2.4.1). At age 11, Austria, Ireland and Spain stand out as strong performers with over 30% of children reporting exercising for at least 60 minutes per day over the past week. At age 15, children in Ireland maintain their place, along with the Czech and Slovak Republics, at 20%. Country rankings vary according to the child's age. Children in Denmark, France and Italy were least likely to report exercising regularly. Italy appears at the lower end for both boys and girls, and at both ages. A higher proportion of boys consistently reported undertaking physical activity, whether moderate or vigorous, across all countries and all age groups (Figures 2.4.2 and 2.4.3).

It is of concern that physical activity tends to fall between ages 11 to 15 for most European countries, with boys in Italy the only exception, although they have the lowest rate of physical activity at age 15. In Austria, Finland, Norway and Spain, the rates of exercising among boys halve between ages 11 and 15. The rates of girls exercising to recommended levels also fall between the ages of 11 and 15 years. In many countries, rates for 15-year-old girls are less than half of those at age 11, and in Austria, Ireland, Romania and Spain, rates of physical activity among girls fall by over 60%.

The change in activity levels between 11- and 15-year-olds may reflect a move to different types of activity, since free play is more common among younger children, and structured activities at school or in sports clubs among older groups. Boys tend to be more physically active than girls in all countries, also suggesting that the opportunities to undertake physical activity may be gender-biased (Currie *et al.*, 2012).

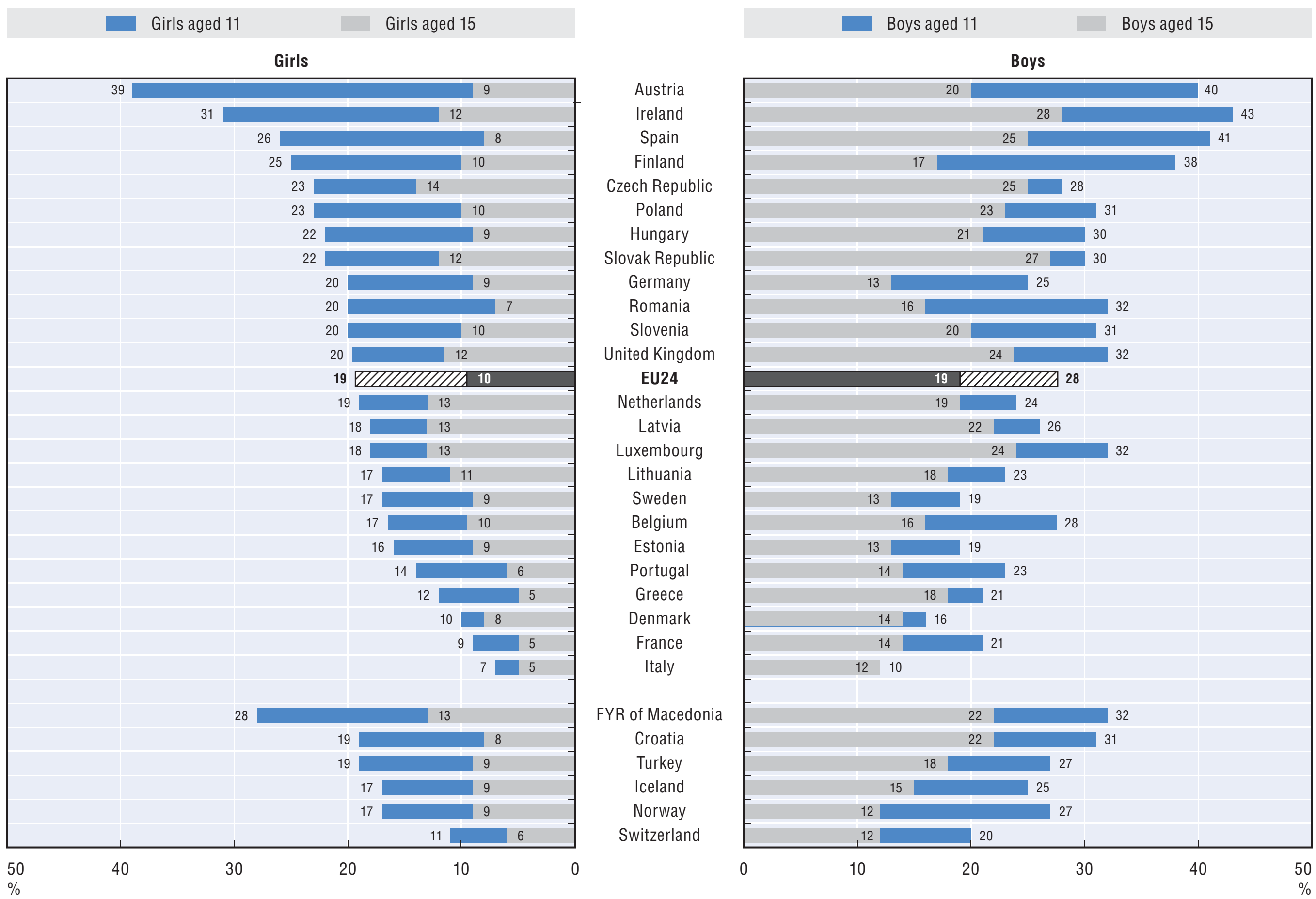
Daily moderate-to-vigorous physical activity for 2005-06 and 2009-10 averaged across 21 EU member states are shown in Figure 2.4.3. Reported levels fell slightly for both boys and girls, and in all age groups, except boys aged 15 years.

Definition and comparability

Data for physical activity considers the regularity of moderate-to-vigorous physical activity as reported by 11-, 13- and 15-year-olds for the years 2005-06 and 2009-10. Moderate-to-vigorous physical activity refers to exercise undertaken for at least an hour each day which increases the heart rate, and leaves the child out of breath sometimes.

Data for 24 EU member states and six other countries are from the Health Behaviour in School-aged Children (HBSC) surveys. Data are drawn from school-based samples of 1 500 in each age group in most countries.

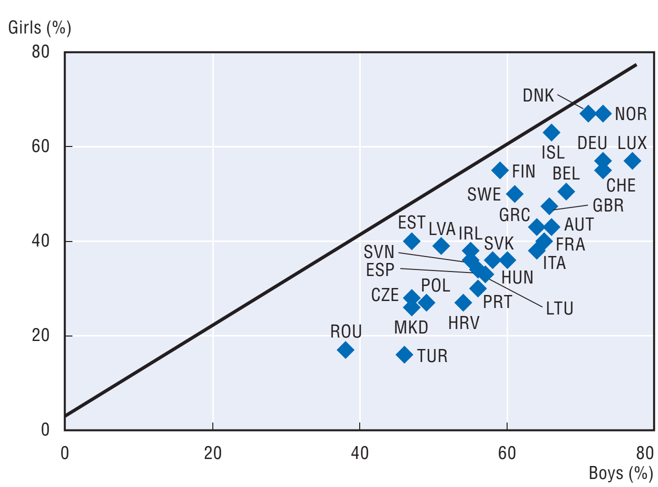
2.4.1. Daily moderate-to-vigorous physical activity, 11- and 15-year-olds, 2009-10



Source: Currie et al. (2012).

StatLink http://dx.doi.org/10.1787/888932703943

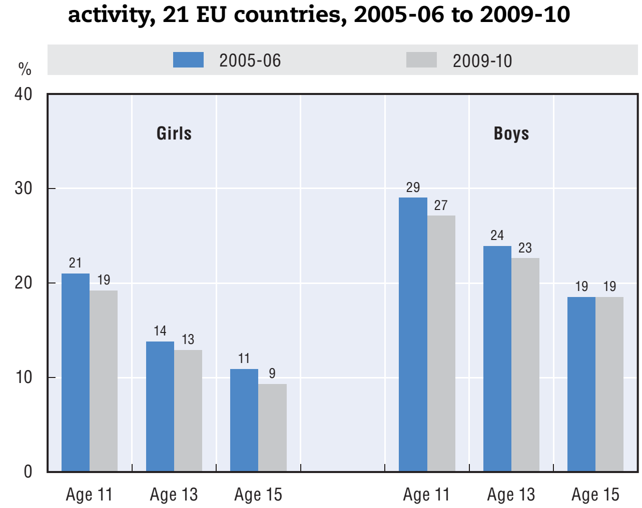
2.4.2. Vigorous physical activity for two or more hours per week, 15-year-olds, 2009-10



Source: Currie et al. (2012).

StatLink http://dx.doi.org/10.1787/888932703962

2.4.3. Trends in daily moderate-to-vigorous physical activity, 21 EU countries, 2005-06 to 2009-10



Source: Currie et al. (2008); Currie et al. (2012).

StatLink http://dx.doi.org/10.1787/888932703981

Tobacco is responsible for about one-in-ten adult deaths worldwide, equating to about 5 million deaths each year (WHO, 2012a). It is a major risk factor for at least two of the leading causes of premature mortality – circulatory disease and cancer, increasing the risk of heart attack, stroke, lung cancer, cancers of the larynx and mouth, and pancreatic cancer. Smoking also causes peripheral vascular disease and hypertension. In addition, it is an important contributory factor for respiratory diseases such as chronic obstructive pulmonary disease (COPD), while smoking among pregnant women can lead to low birth weight and illnesses among infants. It remains the largest avoidable risk to health in European countries.

The proportion of daily smokers among the adult population varies greatly across countries (Figure 2.5.1). Only seven of 27 EU member states had rates of less than 20% of the adult population smoking daily in 2010. Rates were lowest in Finland, Malta, Luxembourg, Portugal, Slovenia, the Slovak Republic and Sweden, as well as Iceland and Norway. Although large disparities remain, smoking rates across most EU member states have declined. On average, smoking rates have decreased by about 5 percentage points since 2000, with a higher decline among men than women. Large declines occurred in Denmark (31% to 20%), Latvia (42% to 28%), Luxembourg (26% to 18%), and the Netherlands (29% to 21%), as well as in Norway and Iceland. Greece maintained the highest level of smoking around 2010, along with Bulgaria and Ireland, with close to 30% or more of the adult population smoking daily. The Czech Republic is one of the few EU member states where smoking rates appear to be increasing.

In the post-war period, most European countries tended to follow a general pattern marked by very high smoking rates among men (50% or more) through to the 1960s and 1970s, while the 1980s and the 1990s were characterised by a downturn in tobacco consumption. Much of this decline can be attributed to policies aimed at reducing tobacco consumption through public awareness campaigns, advertising bans and increased taxation, in response to rising rates of tobacco-related diseases (EC, 2012c). In addition to government policies, actions by anti-smoking interest groups were very effective in reducing smoking rates by changing beliefs about the health effects of smoking.

Smoking prevalence among men is higher in all EU member states except in Sweden (Figure 2.5.2). In other Nordic countries (Denmark, Iceland, Norway), as well as in the United Kingdom, male and female smoking rates are close to equal. In 2010, the gender gap in smoking rates was particularly large in Latvia and Lithuania, as well as in Cyprus, Bulgaria, Romania and Turkey. Female smoking rates continue to decline in most countries, and in several at a faster pace than male rates. However, female smoking rates have shown little or no decline since 2000 in three countries: the Czech Republic, France and Italy.

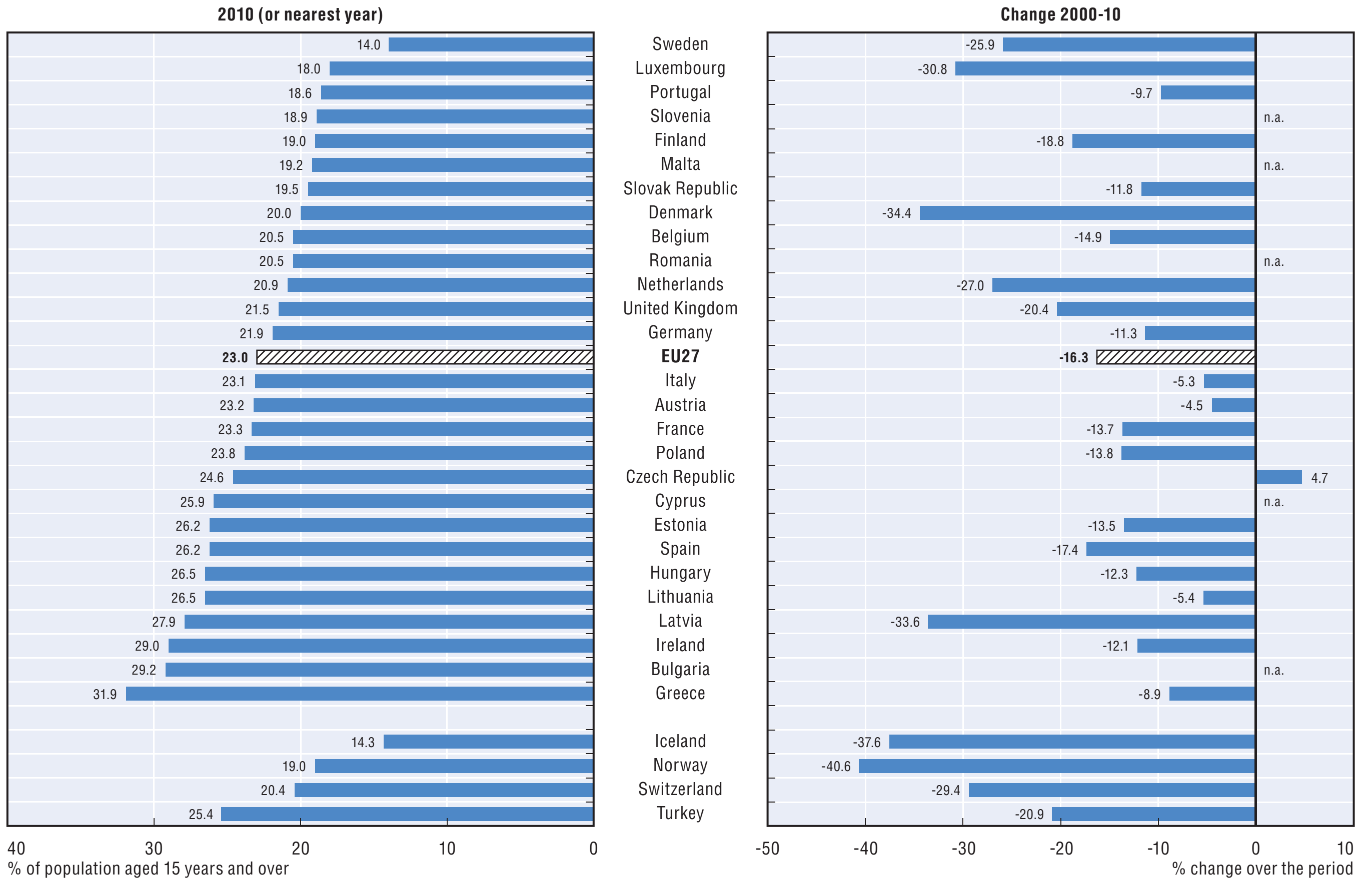
Several studies provide strong evidence of socio-economic differences in smoking and mortality (Mackenbach *et al.*, 2008). People in lower social groups have a greater prevalence and intensity of smoking, a higher all-cause mortality rate and lower rates of cancer survival (Woods *et al.*, 2006). The influence of smoking as a determinant of overall health inequalities is such that, if the entire population did not smoke, mortality differences between social groups would be halved (Jha *et al.*, 2006).

Definition and comparability

The proportion of daily smokers is defined as the percentage of the population aged 15 years and over who report smoking every day.

International comparability is limited due to the lack of standardisation in the measurement of smoking habits in health interview surveys across EU member states. Variations remain in the age groups surveyed, wording of questions, response categories and survey methodologies, *e.g.* in a number of countries, respondents are asked if they smoke regularly, rather than daily.

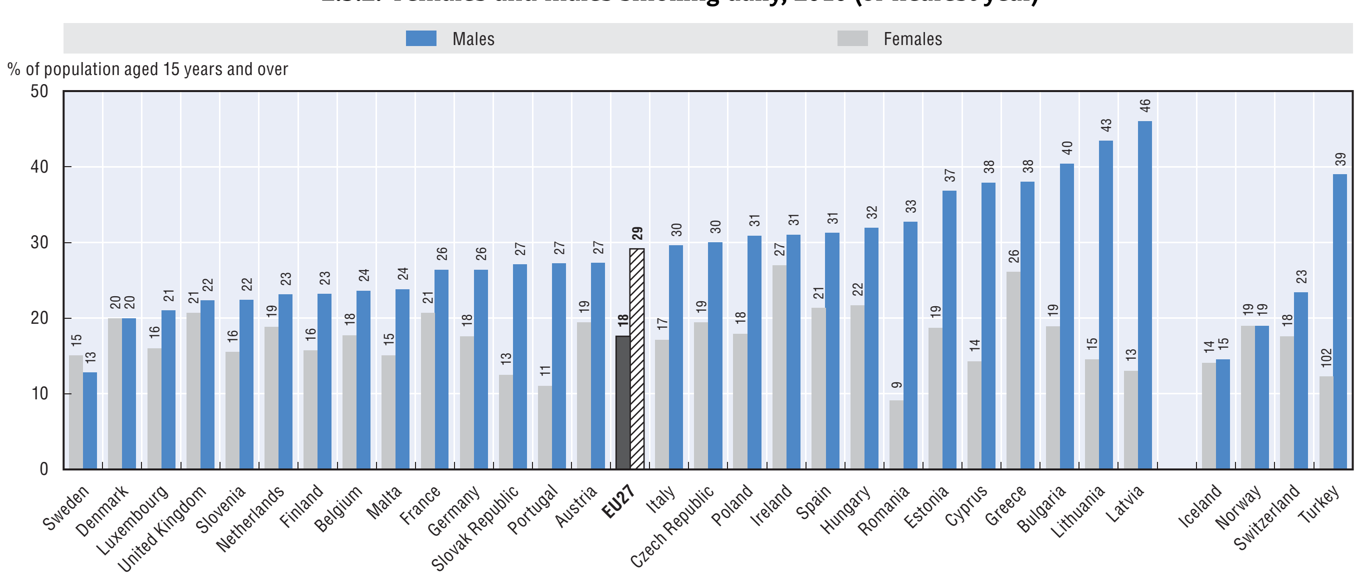
2.5.1. Adult population smoking daily, 2010 and change in smoking rates, 2000-10 (or nearest year)



Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; WHO Global Infobase.

StatLink http://dx.doi.org/10.1787/888932704000

2.5.2. Females and males smoking daily, 2010 (or nearest year)



Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932704019

The health burden related to excessive alcohol consumption, both in terms of morbidity and mortality, is considerable (Rehm *et al.*, 2009; WHO Europe, 2012a). In Europe, alcohol is the third leading risk factor for disease and mortality after tobacco and high blood pressure. High alcohol intake is associated with increased risk of heart, stroke and vascular diseases, as well as liver cirrhosis and certain cancers. Foetal exposure to alcohol increases the risk of birth defects and intellectual impairments. Alcohol also contributes to death and disability through accidents and injuries, assault, violence, homicide and suicide. It is, however, one of the major avoidable risk factors.

The EU region has the highest alcohol consumption in the world. Measured through monitoring annual sales data, it stands at 10.7 litres of pure alcohol per adult on average across EU member states, using the most recent data available (Figure 2.6.1). Leaving aside Luxembourg – because of the high volume of purchases by non-residents in this country – Austria, France, Latvia, Lithuania and Romania reported the highest consumption of alcohol, with 12.0 litres or more per adult in 2010. At the other end of the scale, southern European countries (Cyprus, Greece, Italy, Malta) along with Nordic countries (Iceland, Sweden, and Norway) have relatively low levels of consumption, in the region of 7-8 litres of pure alcohol per adult. Turkey and the Former Yugoslav Republic of Macedonia have rates well below four litres.

Although average alcohol consumption has gradually fallen in many European countries over the past three decades, it has risen in some others. There has been a degree of convergence in drinking habits across the European Union, with wine consumption increasing in many traditional beer-drinking countries and *vice versa*. The traditional wine-producing countries of Italy, France and Spain, as well as Greece, have seen their alcohol consumption per capita fall substantially since 1980 (Figures 2.6.1 and 2.6.2). On the other hand, alcohol consumption per capita in Cyprus, Finland, Iceland and Ireland rose by a quarter or more since 1980 although, in the case of Iceland and Cyprus, it started from a low level and therefore remains relatively low.

Variations in alcohol consumption across countries and over time reflect not only changing drinking habits but also the policy responses to control alcohol use. Curbs on advertising, sales restrictions and taxation have all proven to be effective measures to reduce alcohol consumption (Bennett, 2003; WHO Europe, 2012a). Strict controls on sales and high taxation are mirrored by overall lower consumption in most Nordic countries.

Although adult alcohol consumption per capita gives useful evidence of long-term trends, it does not identify sub-populations at risk from harmful drinking patterns. Much of the burden of disease associated with alcohol consumption occurs among persons who have an alcohol dependence problem. The consumption of large quantities of alcohol at a single session, termed "binge drinking", is also a particularly dangerous pattern of consumption (Institute of Alcohol Studies, 2007), which is on the rise in some countries and social groups, especially among young males (see Indicator 2.1 "Smoking and alcohol consumption among children").

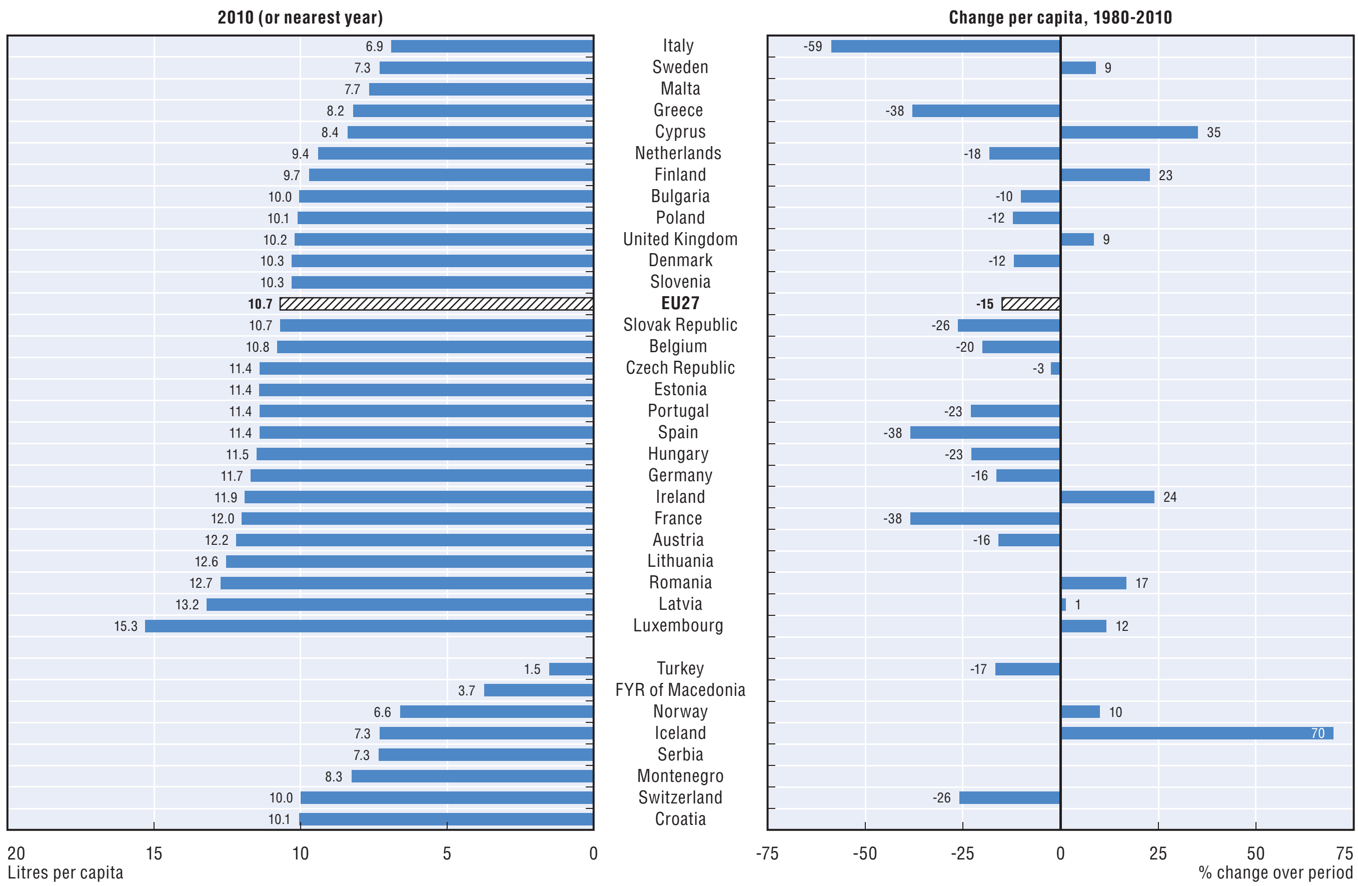
The 2006 Commission Communication on an EU strategy to support member states in reducing alcohol-related harm highlighted a number of priority themes, including protecting children and young people, reducing harm from alcohol-related road accidents, reducing the negative impact of alcohol in the workplace, education on harmful consumption, and developing a common alcohol evidence base at EU level (EC, 2009a). In 2010, the World Health Organization endorsed a global strategy to combat the harmful use of alcohol, through direct measures such as medical services for alcohol-related health problems, and indirect measures, such as policy options for restricting the availability and marketing of alcohol. This initiative was boosted in 2011 by the adoption of a new European Action Plan by the WHO Regional Office for Europe.

Definition and comparability

Alcohol consumption is defined as annual sales of pure alcohol in litres per person aged 15 years and over. The methodology to convert alcohol drinks to pure alcohol may differ across countries. Official statistics do not include unrecorded alcohol consumption, such as home production.

Italy reports consumption for the population 14 years and over, resulting in a slight underestimation, and Sweden for 16 years and over. In some countries (*e.g.* Luxembourg), national sales do not accurately reflect actual consumption by residents, since purchases by non-residents may create a significant gap between national sales and consumption.

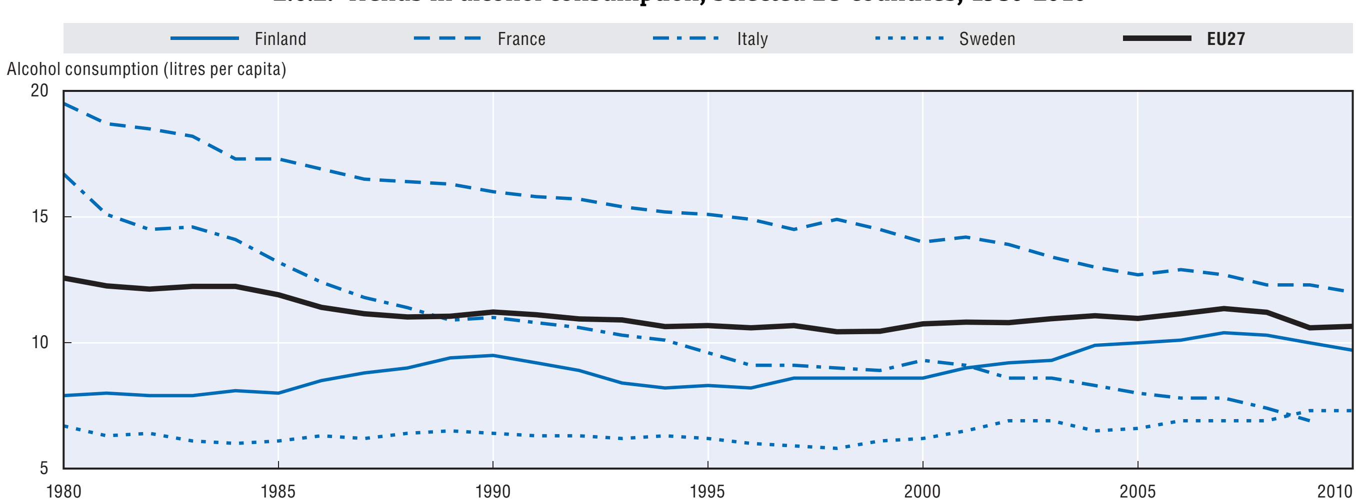
2.6.1. Alcohol consumption among population aged 15 years and over, 2010 and change, 1980-2010



Source: *OECD Health Data 2012*; WHO Global Information System on Alcohol and Health.

StatLink http://dx.doi.org/10.1787/888932704038

2.6.2. Trends in alcohol consumption, selected EU countries, 1980-2010



Source: *OECD Health Data 2012*; WHO Global Information System on Alcohol and Health.

StatLink http://dx.doi.org/10.1787/888932704057

The growth in overweight and obesity rates among adults is a major public health concern. Obesity is a known risk factor for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases, respiratory problems (asthma), musculoskeletal diseases (arthritis) and some forms of cancer. Mortality also increases sharply once the overweight threshold is crossed (Sassi, 2010). Because obesity is associated with higher risks of chronic illnesses, it is linked to significant additional health care costs.

Based on latest available data, more than half (52%) of the adult population in the European Union are overweight or obese. The prevalence of overweight and obesity among adults exceeds 50% in no less than 18 of 27 EU member states. Obesity – which presents even greater health risks than overweight – varies threefold among countries, from a low of around 8% in Romania (and Switzerland) to over 25% in Hungary and the United Kingdom, although some of the variations across countries may be due to different methodologies in data collection (Figure 2.7.1). On average across EU member states, 17% of the adult population is obese.

There is little difference in the average obesity rate of men and women (Figure 2.7.1). However, there is some variation among individual countries, with more men than women being obese in Malta, Iceland and Norway, whereas a higher proportion of women are obese in Latvia, Turkey and Hungary. The largest disparities were in Latvia, whereas there was little, if any difference in male and female rates in the Czech Republic, Greece and the United Kingdom.

The rate of obesity has doubled over the past 20 years in many European countries (Figure 2.7.2), regardless of previous levels. Obesity in 2010 is close to twice the rate of 1990 in both France and the United Kingdom, even though the rate in France is currently half that of the United Kingdom.

The rise in obesity has affected all population groups, but to varying extents. Evidence from a number of countries, including Austria, England, France, Italy and Spain, indicates that obesity tends to be more common in disadvantaged socio-economic groups, and especially among women (Sassi *et al.*, 2009). There is also a relationship between the number of years of education and obesity, with the most educated individuals displaying lower rates. Again, the gradient in obesity is stronger in women than in men (Sassi, 2010).

A number of behavioural and environmental factors have contributed to the rise in overweight and obesity rates in industrialised countries, including the widespread availability of energy dense foods and more time spent being physically inactive. Overweight and obesity have risen rapidly in children in recent decades, reaching double-figure rates in most countries (see Indicator 2.2 "Overweight and obesity among children").

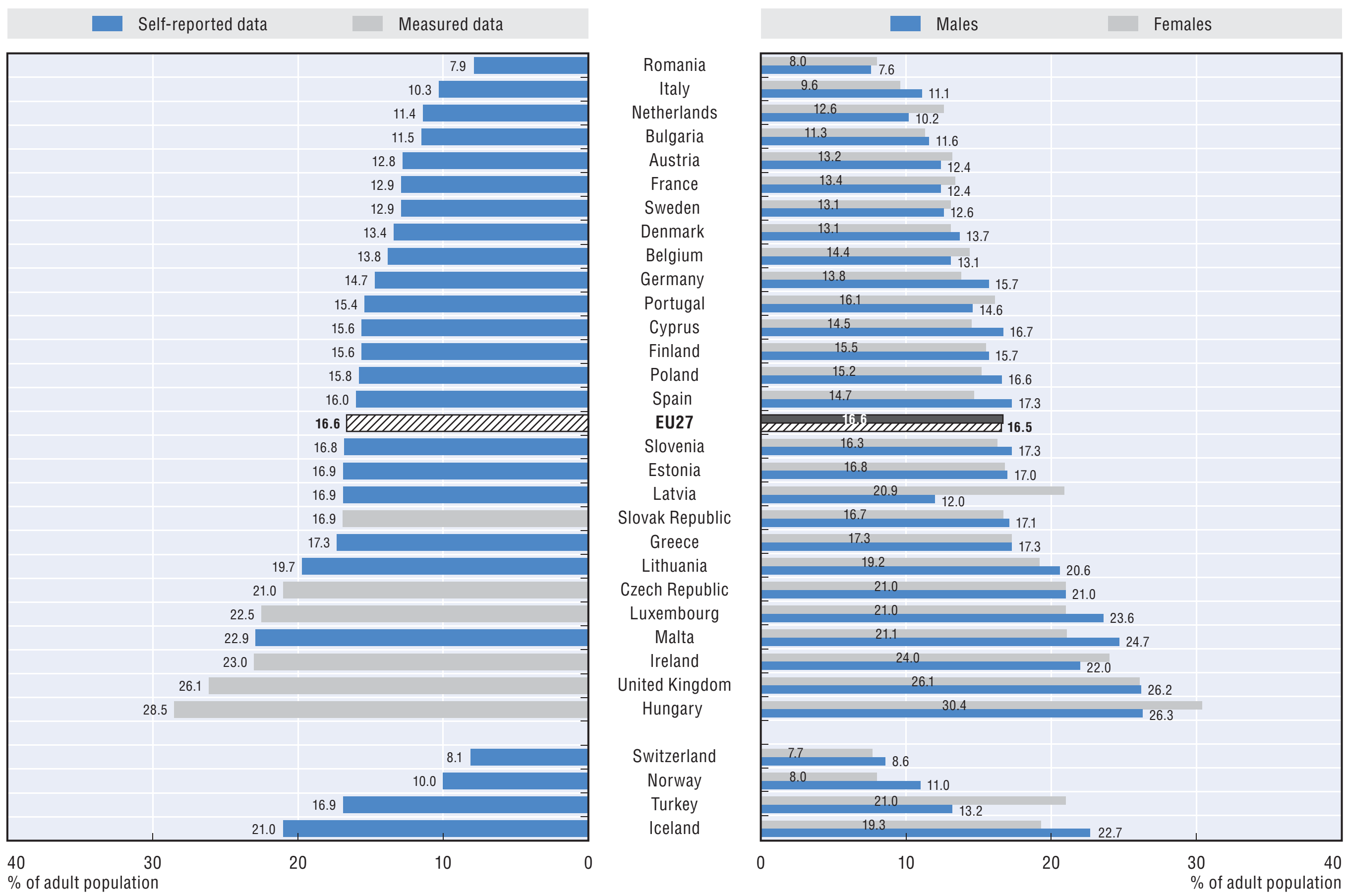
Many countries have stepped up efforts to tackle the root causes of obesity, embracing increasingly comprehensive strategies and involving communities and key stakeholders. Better informed consumers, the availability of healthy food options, encouraging physical activity and a focus on vulnerable groups are some of the fields for action which have seen progress (EC, 2010a). There has also been a new interest in the use of taxes on foods rich in fat and sugar, with several governments (Denmark, Finland, France, Hungary) recently passing legislation aiming to change eating habits (OECD, 2012b).

Definition and comparability

Overweight and obesity are defined as excessive weight presenting health risks because of the high proportion of body fat. The most frequently used measure is based on the body mass index (BMI), which is a single number that evaluates an individual's weight in relation to height (weight/height^2, with weight in kilograms and height in metres). Based on the WHO classification (WHO, 2000), adults with a BMI from 25 to 30 are defined as overweight, and those with a BMI of 30 or over as obese. This classification may not be suitable for all ethnic groups, who may have equivalent levels of risk at lower or higher BMI. The thresholds for adults are not suitable to measure overweight and obesity among children.

For most countries, overweight and obesity rates are self-reported through estimates of height and weight from population-based health interview surveys. The exceptions are the Czech and Slovak Republics, Hungary, Ireland, Luxembourg and the United Kingdom, where estimates are derived from health examinations. These differences limit data comparability. Estimates from health examinations are generally higher and more reliable than from health interviews.

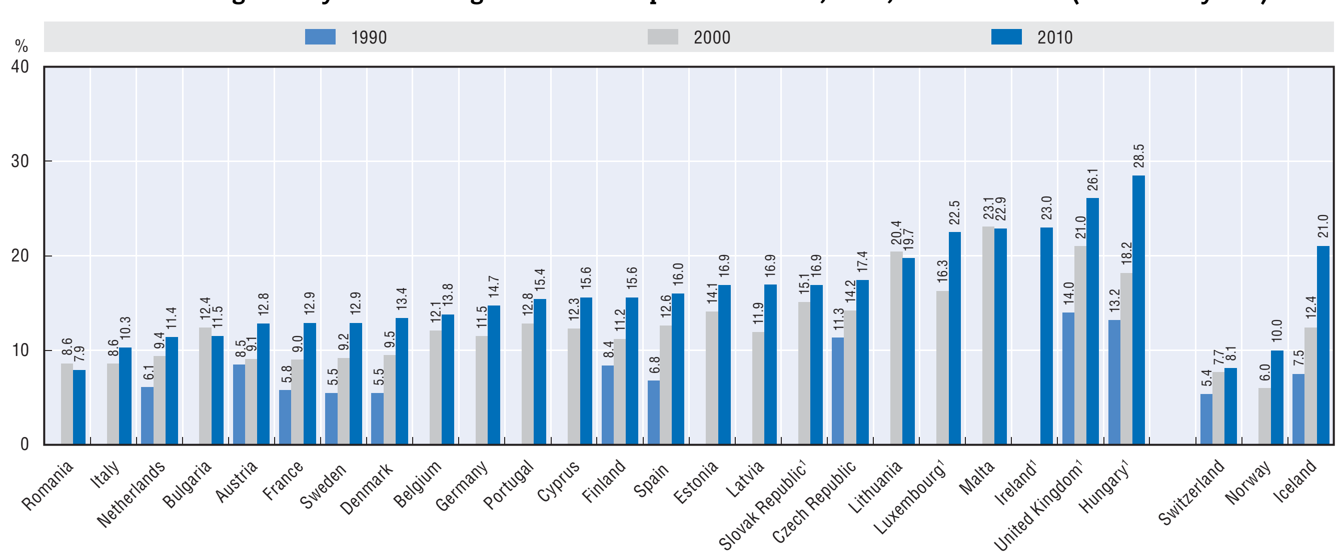
2.7.1. Prevalence of obesity among adults, 2010 (or nearest year)



Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; WHO Global Infobase.

StatLink http://dx.doi.org/10.1787/888932704076

2.7.2. Increasing obesity rates among adults in European countries, 1990, 2000 and 2010 (or nearest years)



1. Hungary (1988, 2009), Ireland (2007), Luxembourg, the Slovak Republic (2008) and the United Kingdom figures are based on health examination surveys, rather than health interview surveys.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; WHO Global Infobase.

StatLink http://dx.doi.org/10.1787/888932704095

Nutrition is an important determinant of health. Inadequate consumption of fruit and vegetables is one factor that can play a role in increased morbidity. Proper nutrition assists in preventing a number of obesity-related chronic conditions, including cardiovascular disease, hypertension, Type 2 diabetes, stroke, certain cancers, musculoskeletal disorders and a range of mental health conditions. A European Commission White Paper advocated increasing the consumption of fruit and vegetables as one of a number of tools to offset a worsening trend of poor diets and low physical activity (EC, 2007).

In response to a health survey question asking "How often do you eat fruit?", the percentage of adults consuming fruit daily varied from 45% in Bulgaria and Romania, to 75% in Italy, Malta and Slovenia, and 84% in Switzerland around 2008 (Figure 2.8.1). Across the 19 EU member states providing data, an average 63% of adults ate fruit daily. Females ate fruit more often than males, with the largest gender differences in Denmark, the Slovak Republic and Germany (23, 20 and 19 percentage points respectively). In Mediterranean countries (Cyprus, Greece, Italy, Malta, Spain and Turkey), gender differences were much smaller, at under 10%.

Among different age groups, older persons aged 65 and over were more likely to eat fruit, with consumption lowest among young people aged 15-24 years, except in Bulgaria and Romania, where young people ate the most (see also Indicator 2.3 "Fruit and vegetable consumption among children"). Fruit consumption also varies by socio-economic status, generally being highest among persons with higher educational levels (Figure 2.8.3). However, this was not the case in Mediterranean countries (Cyprus, Malta, Spain, Greece), where lower educated persons ate fruit more often.

Daily vegetable consumption ranged from around 50% in Estonia, Germany, Malta and the Slovak Republic to 75% in France and Slovenia, with Belgium and Ireland highest at 85% and 95% respectively (Figure 2.8.2). The average across 18 countries was the same as for fruit, 63%. Again, more females reported eating vegetables daily, except in Bulgaria and Ireland, where rates were similar. In the Czech and Slovak Republics, Germany, Italy, Malta and Spain, gender differences exceeded 10%.

Patterns of vegetable consumption among age groups and educational groups are similar to those for fruit. Older persons more commonly ate vegetables daily, except in Bulgaria, the Czech Republic, Latvia and Romania. Highly educated persons ate vegetables more often, although the difference between educational groups was small in Belgium, Cyprus, Italy, Greece, Slovenia and the Slovak Republic (Figure 2.8.4). Differences exceeded 20% in Bulgaria, Latvia and Romania.

The availability of fruit and vegetables is the major determinant of consumption. Despite high variability between countries, vegetable and especially fruit availability is higher in southern European countries, with cereals and potatoes more available in central and eastern European countries. Fruit and vegetable availability also tends to be higher in families where household heads have a higher level of education (Elmadfa, 2009).

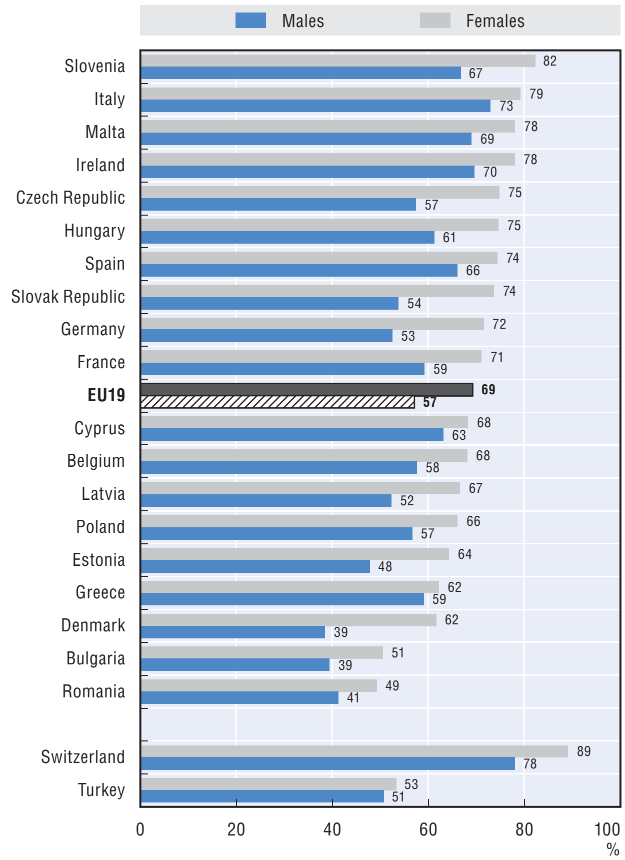
The promotion of fruit and vegetable consumption, especially in schools and the workplace, features in the EU platform for action on diet, physical activity and health, a forum for European-level organisations, ranging from the food industry to consumer protection NGOs, willing to commit to tackling current trends in diet and physical activity (EC, 2011a). Policy makers and government representatives share ideas and best practice on the promotion of fruit and vegetable consumption in the High Level Group on Nutrition and Physical Activity.

Definition and comparability

Estimates of daily fruit and vegetable consumption are derived from national and European Health Interview Survey questions, conducted in many EU member states between 2006 and 2010. Typically, respondents were asked "How often do you eat fruit (excluding juice)?" and "How often do you eat vegetables or salad (excluding juice and potatoes)?" Response categories included: Twice or more a day/ Once a day/Less than once a day but at least four times a week/Less than four times a week, but at least once a week/Less than once a week/Never.

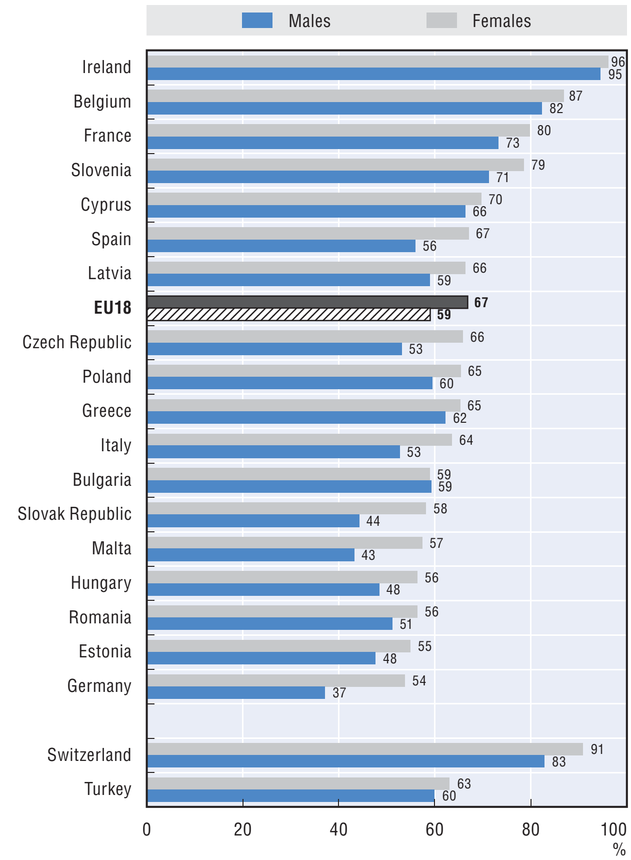
Data for France and Switzerland include juices, soups and potatoes. Data rely on self-report, and are subject to errors in recall. The same survey also asked for information on age, sex and educational level. Data are not age-standardised, with aggregate country estimates representing crude rates among respondents aged 15 years and over in all countries, except Germany which is 18 years and over.

2.8.1. Daily fruit eating among adults, 2008 (or nearest year)



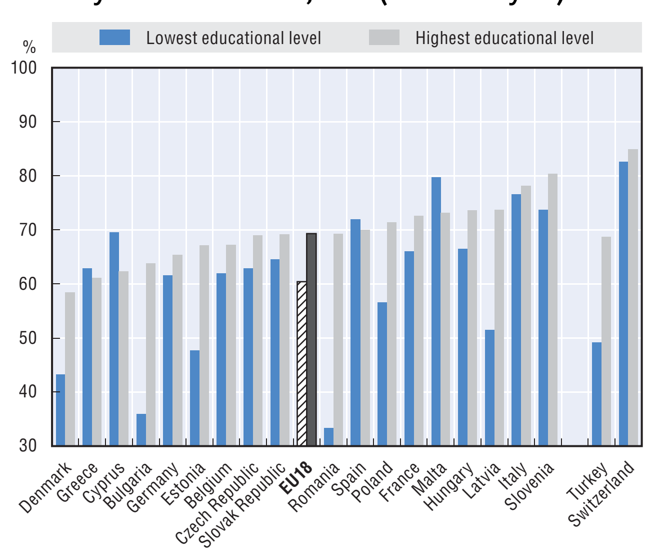
Source: *Eurostat Statistics Database* and national health interview surveys.
StatLink http://dx.doi.org/10.1787/888932704114

2.8.2. Daily vegetable eating among adults, 2008 (or nearest year)



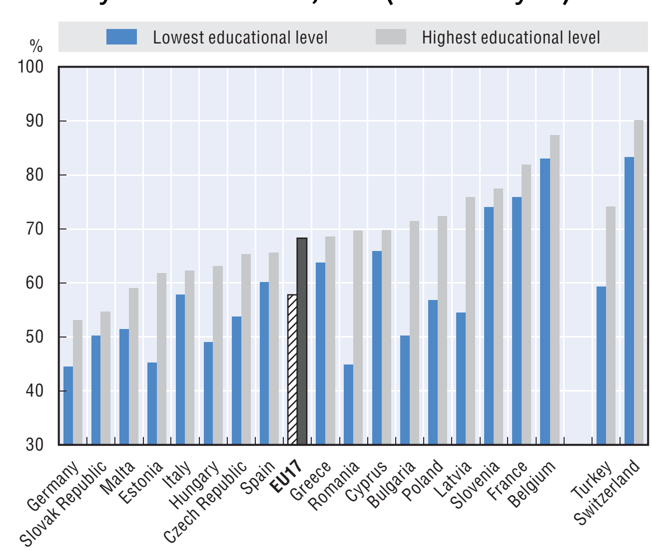
Source: *Eurostat Statistics Database* and national health interview surveys.
StatLink http://dx.doi.org/10.1787/888932704133

2.8.3. Daily fruit eating among adults, by educational level, 2008 (or nearest year)



Source: *Eurostat Statistics Database* and national health interview surveys.
StatLink http://dx.doi.org/10.1787/888932704152

2.8.4. Daily vegetable eating among adults, by educational level, 2008 (or nearest year)



Source: *Eurostat Statistics Database* and national health interview surveys.
StatLink http://dx.doi.org/10.1787/888932704171

Chapter 3

Health care resources and activities

In many European countries, there are concerns about current or future shortages of doctors, in general or more specifically for certain categories of doctors or in certain locations (*e.g.* in rural and remote areas). This section provides data on the number of doctors per capita in European countries in 2010 and its evolution over the past decade, as well as a disaggregation between generalists and specialists.

In 2010, Greece had, by far, the highest number of doctors per capita, with 6.1 doctors per 1 000 population, nearly twice the EU average of 3.4. Following Greece was Austria, with 4.8 doctors per 1 000 population. The number of doctors per capita was also relatively high in Norway, Portugal (although the number reported is an overestimation as it comprises all doctors licensed to practice, including some who may not be practising), Sweden, Switzerland and Spain. The number of doctors per capita was the lowest in Montenegro and Turkey, followed by Poland, Romania and Slovenia (Figure 3.1.1).

Since 2000, the number of physicians per capita has increased in all European countries, except in France, Estonia and Poland. On average across EU member states, physician density grew from 2.9 doctors per 1 000 population in 2000 to 3.4 in 2010. The growth rate was particularly rapid in Greece, which started from the highest level in 2000, thereby increasing the gap with other countries, and the United Kingdom, which started from the second lowest level in 2000, thereby narrowing the gap with other European countries.

In Greece, the number of doctors per capita has stabilised since the beginning of the crisis in 2008, following strong growth between 2000 and 2008.

In the United Kingdom, the number of doctors per capita has gone up steadily over the past decade, from 2.0 doctors per 1 000 population in 2000 to 2.7 in 2010 (and 2.8 in 2011). The number of new registrations of foreign-trained doctors increased up to 2003 when it peaked at about 14 000, but has declined since then to about 5 000 in 2010 and 2011 (General Medical Council, 2012). At the same time, the number of new graduates from medical schools in the United Kingdom increased, from about 4 600 in 2003 to 5 800 in 2010 and in 2011, gradually exceeding the number of new registrations of foreign-trained physicians (OECD, 2012a).

In France, the number of doctors per capita has not increased over the past decade, and it is expected to decrease until 2020, following the reduction in the number of new entrants and graduates from medical schools during the 1980s and 1990s (DREES, 2009).

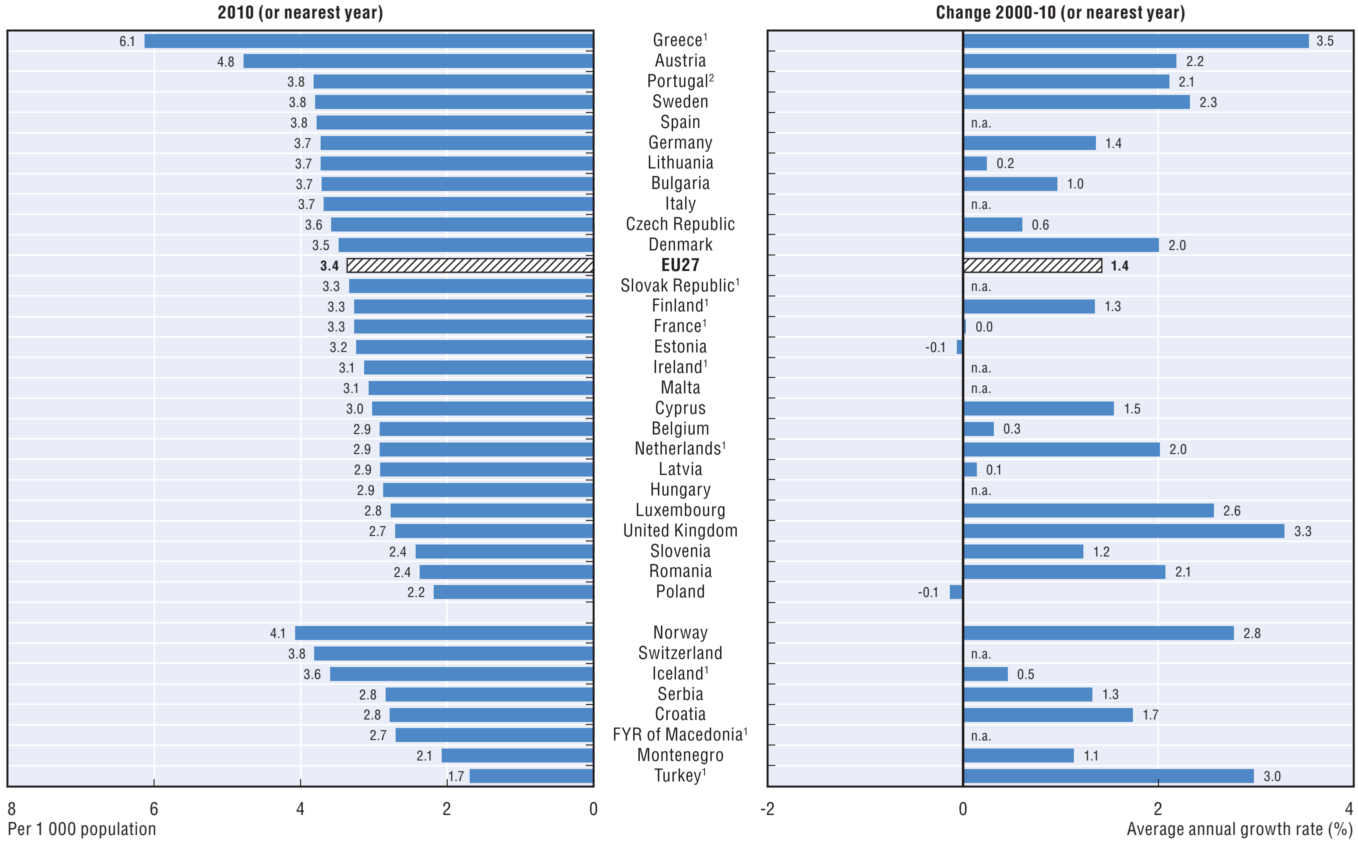
In nearly all countries, the balance between generalist and specialist doctors has changed over the past few decades, with the number of specialists increasing much more rapidly. As a result, there are more specialists than generalists in most countries, except in Ireland, Malta, Portugal and Norway (Figure 3.1.2). This may be explained by a lesser interest in the traditional mode of practice of general practitioners (family doctors) given the workload and constraints attached to it. In addition, in many countries, the remuneration gap between generalists and specialists has widened (Fujisawa and Lafortune, 2008). The slow or negative growth in the number of generalists per capita raises concerns about access to primary care for certain population groups. In response to this shortage, many countries have taken steps to improve the number of training posts and attractiveness of general practice. For example, in France, the number of interns in general practice has increased markedly in recent years, with around half of all internships allocated to general practice in 2010 and 2011 (DREES, 2012). A number of countries are also considering the development of new roles for other health care providers, such as advanced practice nurses, to respond to growing demands for primary care (Delamaire and Lafortune, 2010).

Definition and comparability

Practising physicians are defined as doctors who are providing care directly to patients. In some countries, the numbers also include doctors working in administration, management, academic and research positions ("professionally active" physicians), adding another 5-10% of doctors. Portugal reports all physicians entitled to practice, resulting in an even greater overestimation.

Generalists include general practitioners ("family doctors") and other generalist/non-specialist practitioners who may be working in hospitals or outside hospitals. Specialists include paediatricians, gynaecologists and obstetricians, psychiatrists, medical specialists, surgical specialists and other specialties. Other physicians include interns/residents if they are not reported in the field in which they are training, and doctors who are not classified elsewhere.

3.1.1. Practising doctors per 1 000 population, 2010 and change between 2000 and 2010 (or nearest year)

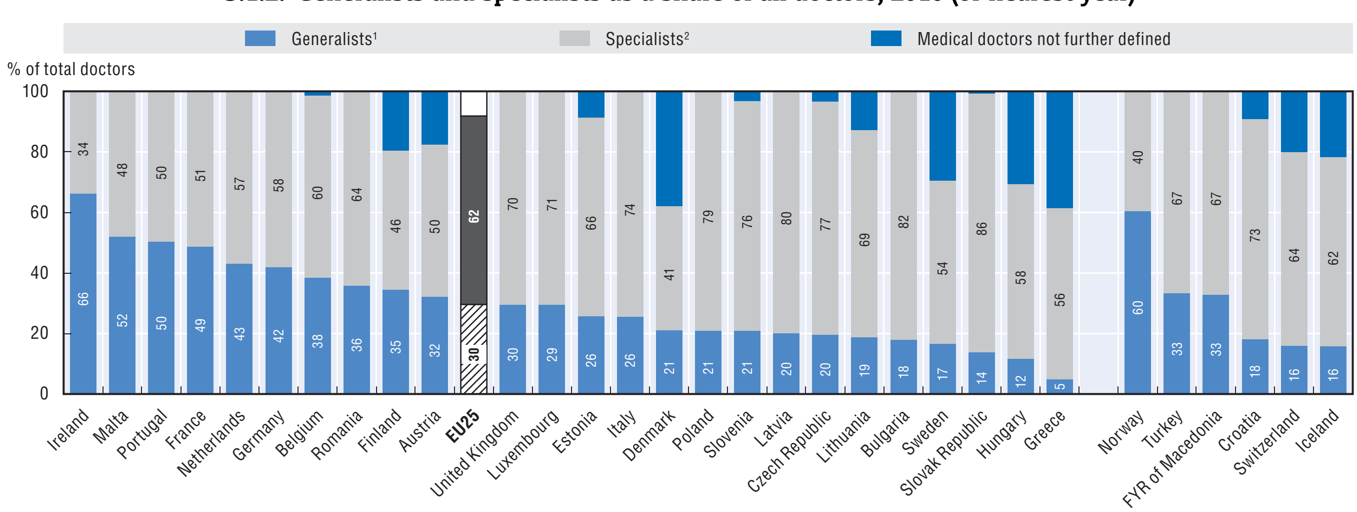


1. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).
2. Data refer to all doctors who are licensed to practice.

Source: *OECD Health Data 2012; Eurostat Statistics Database; WHO European Health for All Database.*

StatLink http://dx.doi.org/10.1787/888932704190

3.1.2. Generalists and specialists as a share of all doctors, 2010 (or nearest year)



1. Generalists include general practitioners/family doctors and other generalist (non-specialist) medical practitioners.
2. Specialists include paediatricians, obstetricians/gynaecologists, psychiatrists, medical, surgical and other specialists.

Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932704209

Consultations with doctors can take place in doctors' offices or clinics, in hospital outpatient departments or, in some cases, in patients' own homes. In many European countries (*e.g.* Denmark, Italy, the Netherlands, Norway, Portugal, the Slovak Republic, Spain and the United Kingdom), patients are required or given incentives to consult a general practitioner (GP) about any new episode of illness. The GP may then refer them to a specialist, if indicated. In other countries (*e.g.* Austria, the Czech Republic and Iceland), patients may approach specialists directly.

The number of doctor consultations per person per year is highest in Hungary, the Czech Republic and the Slovak Republic, while it is lowest in Cyprus, Malta and Sweden (Figure 3.2.1). The EU average is 6.3 consultations per person per year, with most member states reporting 4 to 7 visits per person per year. Cultural factors appear to play a role in explaining some of the variations across countries, although certain health system characteristics may also play a role. Some countries which pay their doctors mainly by fee-for-service tend to have above-average consultation rates (*e.g.* Belgium and Germany), while other countries that have mostly salaried doctors tend to have below-average rates (*e.g.* Finland and Sweden).

In Sweden, the low number of doctor consultations may also be explained partly by the fact that nurses play an important role in primary care (Bourgueil *et al.*, 2006). Similarly, in Finland, nurses and other health professionals play an important role in providing primary care to patients in health centres, lessening the need for consultations with doctors (Delamaire and Lafortune, 2010).

In many European countries, the average number of doctor consultations per person has increased since 2000 (Figure 3.2.1). This is consistent with the increase in the number of doctors per capita in most countries over the past decade (see Indicator 3.1). In the Czech Republic and the Slovak Republic, there has been a substantial reduction in the number of doctor consultations per capita over the past decade, although the number remains well above the EU average. In Spain also, there has been a marked decline in the number of doctor consultations per person since 2000.

The number of doctor consultations varies not only across countries, but also among different population groups in each country. This is particularly the case for consultations with medical specialists. A recent OECD study, using health interview surveys carried out between 2006 and 2009, provides evidence on inequality in doctor consultations by income group in a number of European countries (Devaux and de Looper, 2012). Figure 3.2.2 shows the horizontal inequity index – a measure of inequality in health care use adjusted for differences in need – regarding the probability of having at least one visit to a generalist or a specialist during the year. The probability favours low income groups when it is below zero, and high income groups when it is above zero. The index is adjusted for differences in need for health care because health problems are more frequent and severe among lower income groups. The probability of a generalist (GP) visit is equally distributed in most countries (Figure 3.2.2). When inequality does exist, it is often positive, indicating a pro-rich distribution, but the degree of inequality is small. Lower income people, however, consult a GP more frequently (results not shown). A different story emerges for specialist visits – in nearly all countries, high income people are more likely to see a specialist than those with low income (Figure 3.2.2), and also more frequently.

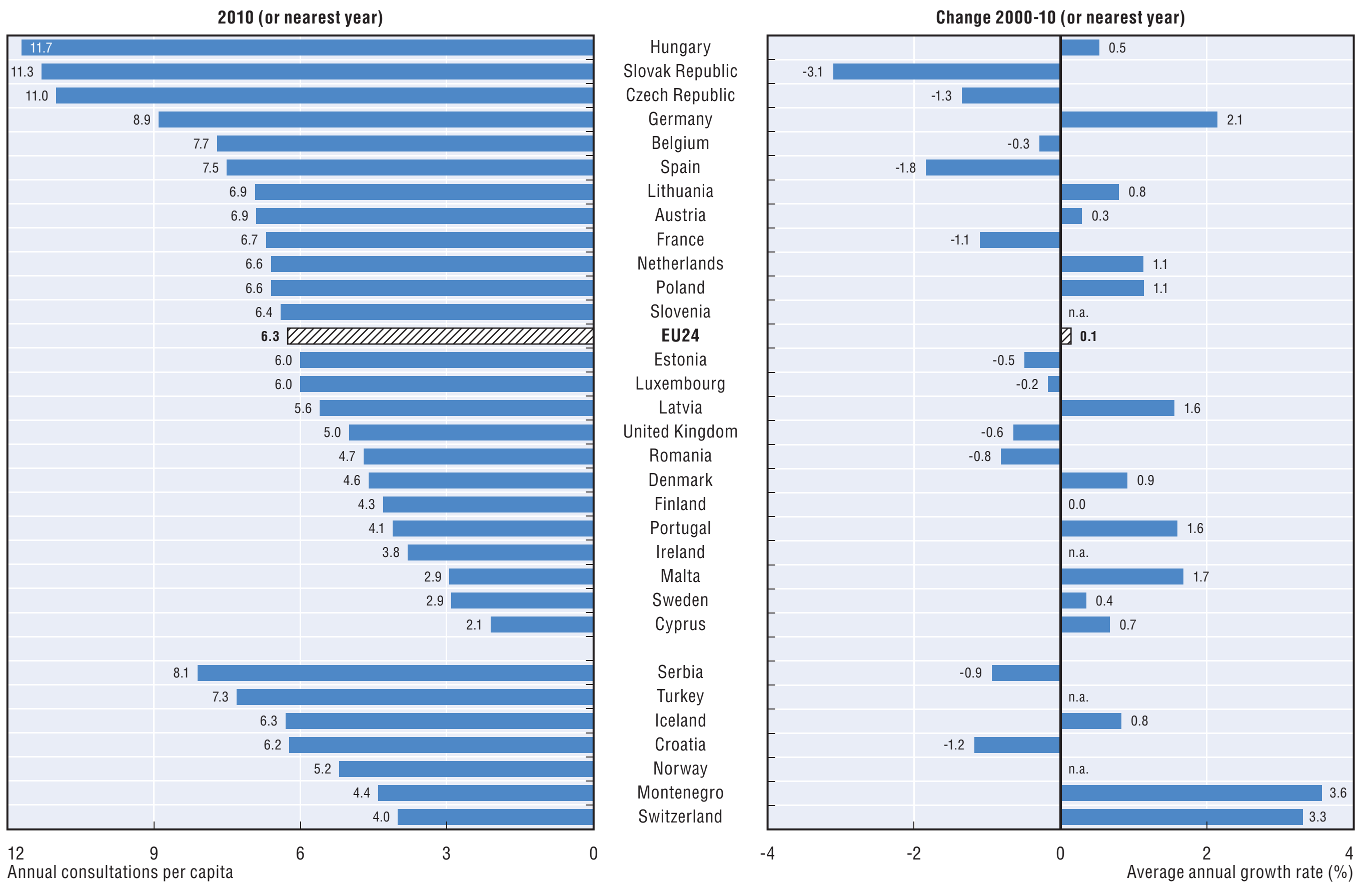
Definition and comparability

Consultations with doctors refer to the number of contacts with physicians, including both generalists and specialists. There are variations across countries in the coverage of different types of consultations, notably in outpatient departments of hospitals. The data come mainly from administrative sources, although in some countries (Ireland, Italy, the Netherlands, Spain, Switzerland and the United Kingdom) the data come from health interview surveys. Estimates from administrative sources tend to be higher than those from surveys because of problems with recall and non-response rates.

The figures for the Netherlands exclude contacts for maternal and child care. The data for Portugal exclude visits to private practitioners, which is also largely the case in Malta, while those for the United Kingdom exclude consultations with specialists outside hospital. In Luxembourg, doctors consultations outside the country are not included (these consultations account for a higher number than in other countries). In Germany, the data include only the number of cases of physicians' treatment according to reimbursement regulations under the Social Health Insurance Scheme (a treatment only counts the first contact over a three-month period, even if the patient consults a doctor more often). Telephone contacts are included in several countries (*e.g.* the Czech Republic, Ireland, Spain and the United Kingdom).

The horizontal inequity indices shown here refer to the probability of a visit to a generalist or a specialist in a given year by income group. The data come from health interview surveys conducted between 2006 and 2009. Inequalities in doctor consultations are assessed in terms of household income. The number of doctor consultations is adjusted for need, based on self-reported information about health status. Differing survey questions and response categories may affect cross-national comparisons. The measures used to grade income can also vary. Caution is therefore needed when interpreting inequalities in doctor consultations across countries.

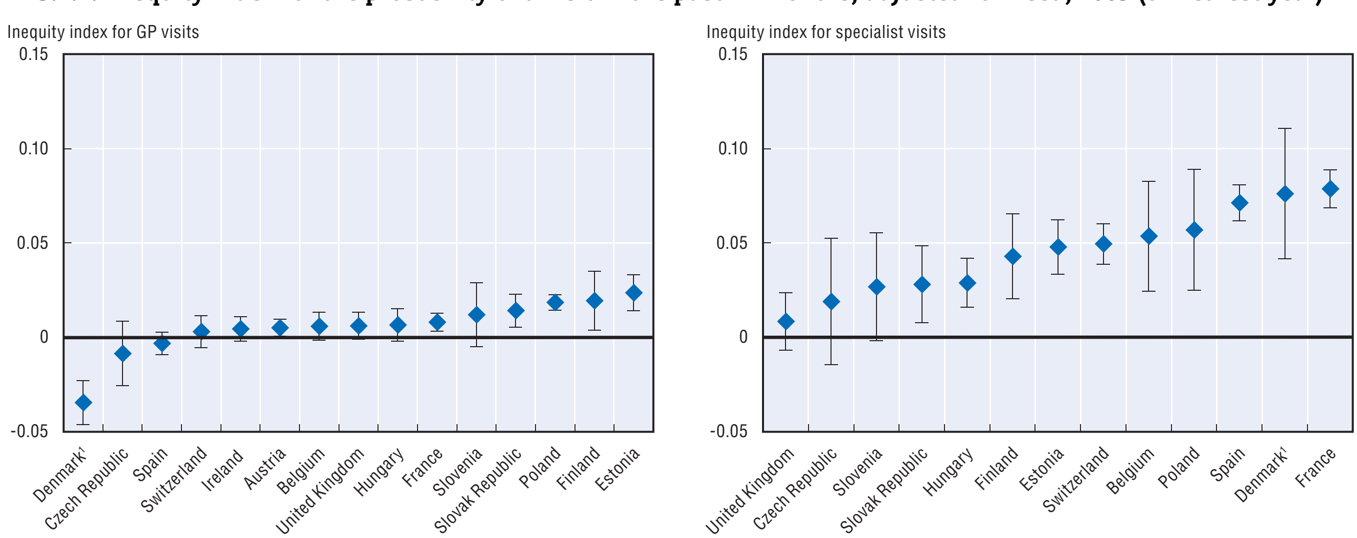
3.2.1. Doctors consultations per capita, 2010 and change between 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012; WHO European Health for All Database.

StatLink http://dx.doi.org/10.1787/888932704228

3.2.2. Inequity index for the probability of a visit in the past 12 months, adjusted for need, 2009 (or nearest year)



1. Visits in the past three months in Denmark.

Source: Devaux and de Looper (2012).

StatLink http://dx.doi.org/10.1787/888932704247

Nurses are usually the most numerous health profession, outnumbering physicians in most European countries. Nurses play a critical role in providing health care not only in traditional settings such as hospitals and long-term care institutions but increasingly in primary care (especially in offering care to the chronically ill) and in home care settings. However, there are concerns in many countries about shortages of nurses, and these concerns may well intensify in the future as the demand for nurses continues to increase and the ageing of the "baby boom" generation precipitates a wave of retirements among nurses. These concerns have prompted many countries to increase the training of new nurses combined with efforts to increase the retention of nurses in the profession (OECD, 2008a).

In 2010, there were over 15 nurses per 1 000 population in Switzerland, Denmark and Belgium. Turkey had the fewest nurses, followed by Greece and the Former Yugoslav Republic of Macedonia (all these countries have fewer than four nurses per 1 000 population). The EU average was close to eight nurses per 1 000 population.

Since 2000, the number of nurses per capita has increased in all European countries, except in Lithuania and the Slovak Republic. The increase was particularly large in Portugal, Spain and Turkey. In Denmark and France, there was also a fairly large increase in the number of nurses, rising by over 25% in absolute terms since 2000. In Estonia, the absolute number of nurses increased up to 2008, but has decreased since then; this has led to a reduction in the number of nurses per 1 000 population from 6.4 in 2008 to 6.1 in 2010.

In 2010, the number of nurses per doctor ranged from more than four in Denmark, Finland, Ireland and Switzerland to less than one nurse per doctor in Greece and one in Italy and Turkey (Figure 3.3.2). The average across EU member states is two-and-a-half nurses per doctor, with many countries reporting between two to four nurses per doctor. In Greece and Italy, there is evidence of an oversupply of doctors and undersupply of nurses, resulting in an inefficient allocation of resources (OECD, 2009; Chaloff, 2008).

A recent survey of nurses working in hospitals in 12 European countries provides evidence about their job satisfaction and intention to leave the profession, as well as their perception of the quality of care provided in their hospital. This survey found large variations in rates of job dissatisfaction among nurses, ranging from 11% in the Netherlands up to 56% in Greece, and their intention to leave their positions, with rates varying from 19% in the Netherlands up to almost 50% in Finland and Greece. Nurses in Greece also reported a particularly high level of burnout, and nearly half described their hospital wards as providing poor or fair quality of care only. In all countries, higher nurse staffing levels and better work environments in hospital were significantly associated with better quality and safety of care for patients, and higher job satisfaction for nurses (Aiken *et al.*, 2012).

In response to shortages of general practitioners, some countries have taken the initiative to develop more advanced roles for nurses to ensure proper access to primary care. Evaluations of the experience with (advanced) nurse practitioners in Finland and the United Kingdom, as well as in Canada and the United States, show that they can improve access to care and reduce waiting times, while providing the same quality of care as doctors for patients with minor illnesses or those requiring routine follow-up. Most evaluations find a high patient satisfaction rate, with the impact on cost being either cost-reducing or cost-neutral. The development of new advanced roles for nurses requires the implementation of more advanced education and training programmes to ensure that they have proper skills (often at the master's level at university), and also often involve legislative or regulatory changes to remove any barrier to the extension in their scope of practice (Delamaire and Lafortune, 2010).

Definition and comparability

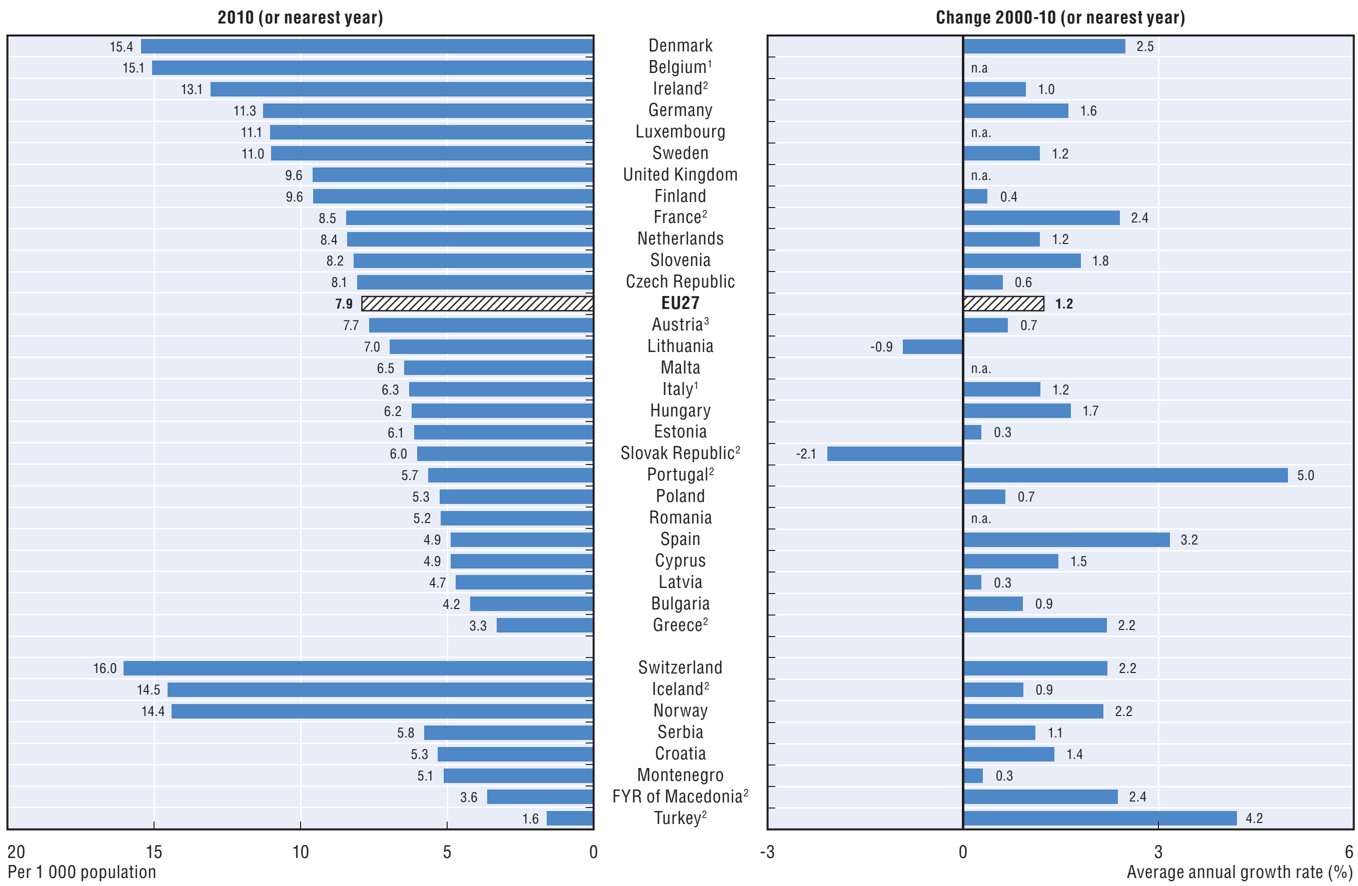
The number of nurses includes those employed in public and private settings, who are providing services directly to patients ("practising") and/or are working as managers, educators or researchers ("professionally active"). Data for Belgium and Italy refer to all nurses who are licensed to practice, regardless of whether they are practising/professionally active or not (this is resulting in a large overestimation).

In countries where there are different levels of nurses, the data include both "professional nurses" who have a higher level of education and perform higher level tasks and "associate professional nurses" who have a lower level of education but are nonetheless recognised and registered as nurses.

Midwives, as well as nursing aids who are not recognised as nurses, are normally excluded. However, some countries include midwives because they are considered as specialist nurses.

Austria reports only nurses working in hospitals, resulting in an underestimation. Data for Germany does not include about 270 000 nurses (representing an additional 30% of nurses) who have three years of education and are providing services for the elderly.

3.3.1. Practising nurses per 1 000 population, 2010 and change between 2000 and 2010

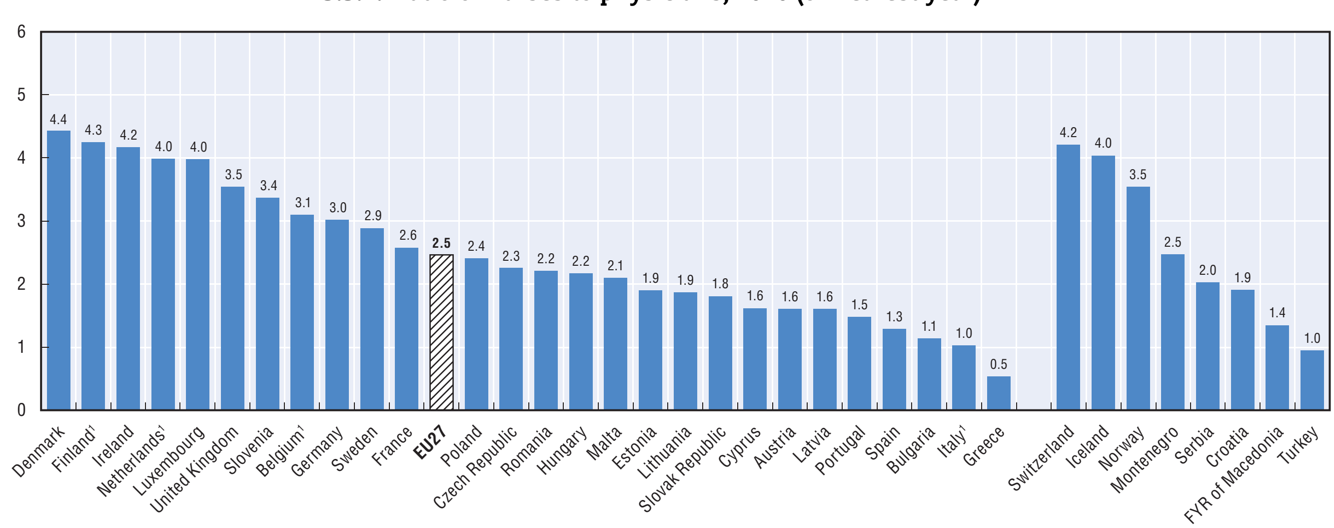


1. Data refer to all nurses who are licensed to practice.
2. Data include not only nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc.
3. Austria reports only nurses employed in hospitals.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; *WHO European Health for All Database*.

StatLink http://dx.doi.org/10.1787/888932704266

3.3.2. Ratio of nurses to physicians, 2010 (or nearest year)



1. For those countries which have not provided data for practising nurses and/or practising physicians, the numbers relate to the same concept ("professionally active" or "licensed to practice") for both nurses and physicians, for the sake of consistency.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; *WHO European Health for All Database*.

StatLink http://dx.doi.org/10.1787/888932704285

New medical technologies are improving diagnosis and treatment, but they are also increasing health spending. This section presents data on the availability and use of two diagnostic technologies: computed tomography (CT) scanners and magnetic resonance imaging (MRI) units. CT scanners and MRI units help physicians diagnose a range of conditions by producing images of internal organs and structures of the body. Unlike conventional radiography and CT scanning, MRI exams do not expose patients to ionising radiation.

The availability of CT scanners and MRI units has increased rapidly in most European countries over the past two decades. For example, in the Netherlands, the number of MRI units per capita was multiplied by ten between 1990 and 2010, while the number of CT scanners nearly doubled. Similarly, in Italy, the number of MRI scanners per capita was increased by nearly six times between 1997 and 2010, and the number of CT scanners more than doubled.

In 2010, Greece, Italy and Cyprus had the highest number of MRI and CT scanners per capita among EU member states. Iceland and Switzerland also had significantly more MRI and CT scanners than the EU average (Figures 3.4.1 and 3.4.2). The numbers of MRI units and CT scanners per population were the lowest in Hungary and Romania.

There is no general guideline or benchmark regarding the ideal number of CT scanners or MRI units per population. However, if there are too few units, this may lead to access problems in terms of geographic proximity or waiting times. If there are too many, this may result in an overuse of these costly diagnostic procedures, with little if any benefits for patients.

Data on the use of these diagnostic scanners are available only for a smaller group of countries. Based on this more limited country coverage, the number of CT and MRI exams per capita is the highest in Greece, consistent with the fact that Greece also has the highest number of these two types of scanners. The number of MRI exams per capita is also above average in Germany and Luxembourg, as well as in Iceland and Turkey. It is the lowest in Ireland and Slovenia, although in these two countries only CT exams and MRI exams carried out in hospitals are reported, resulting in an underestimation.

In Greece, most CT and MRI scanners are installed in privately-owned diagnostic centres and only a minority are found in public hospitals. While there are no guidelines regarding the use of CT and MRI scanners in Greece (Paris *et al.*, 2010), since late 2010, a ministerial decree has established certain criteria concerning the purchase of imaging equipment in the private sector (*Official Gazette*, No. 1918/10, December 2010). One of the main criteria is based on a minimum threshold of population density (30 000 population for CT scanners and 40 000 for MRIs). These regulations do not apply to the public sector.

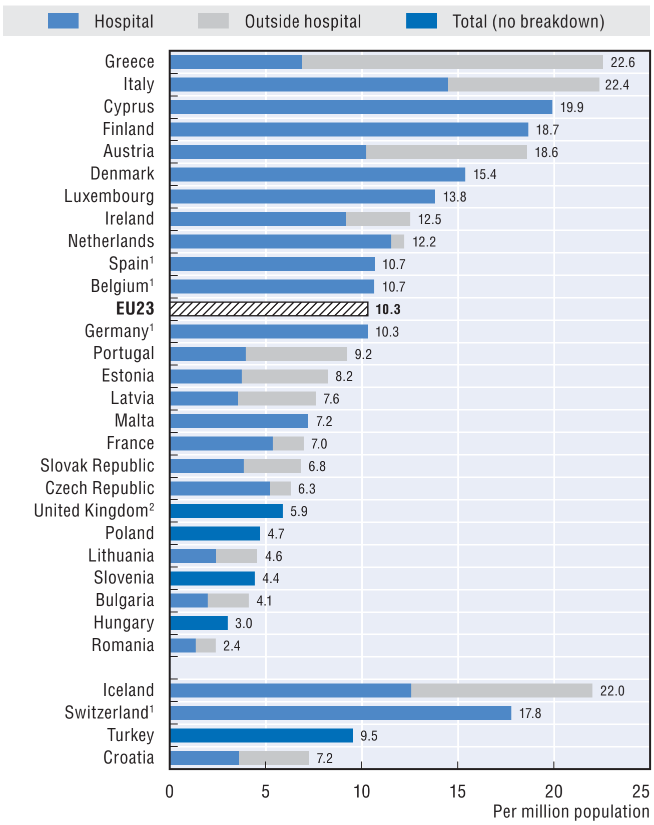
Clinical guidelines have been developed in some European countries to promote a more rational use of such diagnostic technologies (OECD, 2010b). In the United Kingdom, since the creation of the Diagnostic Advisory Committee by the National Institute for Health and Clinical Excellence (NICE), a number of guidelines have been issued on the appropriate use of MRI and CT exams for different purposes (NICE, 2012).

Definition and comparability

For MRI units and CT scanners, the numbers of equipment per million population are reported. MRI exams and CT exams relate to the number of exams per 1 000 population. In most countries, the data cover equipment installed both in hospitals and the ambulatory sector.

However, there is only partial coverage for some countries. MRI units and CT scanners outside hospitals are not included in some countries (Belgium, Germany and Spain, as well as Switzerland for MRI units). For the United Kingdom, the data only include scanners in the public sector. MRI and CT exams outside hospitals are not included in certain countries (Austria, Ireland, Slovenia, Spain and the United Kingdom). Furthermore, MRI and CT exams for Ireland only cover public hospitals. The Netherlands only report data on publicly-financed exams.

3.4.1. MRI units, 2010 (or nearest year)



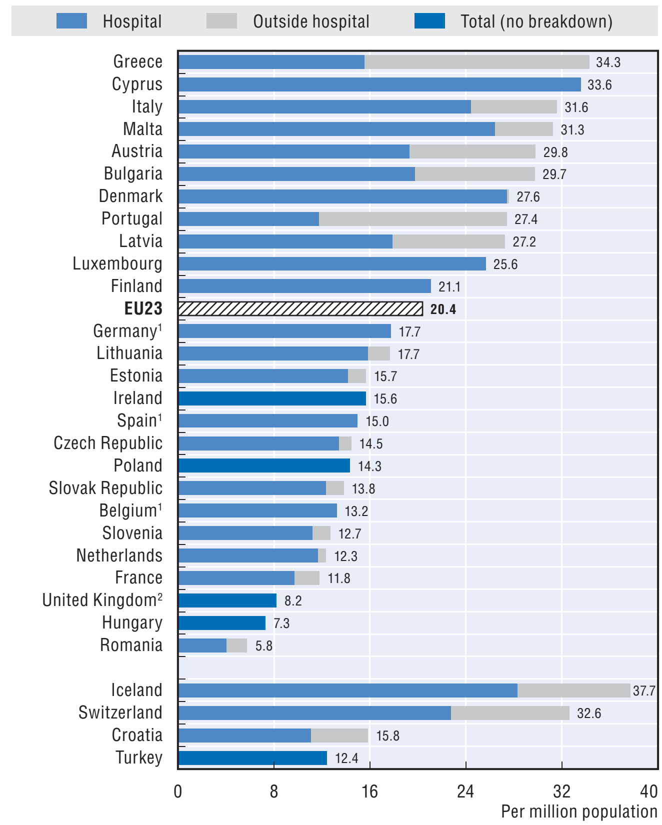
Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.
2. Any equipment in the private sector is not included.

Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932704304

3.4.2. CT scanners, 2010 (or nearest year)



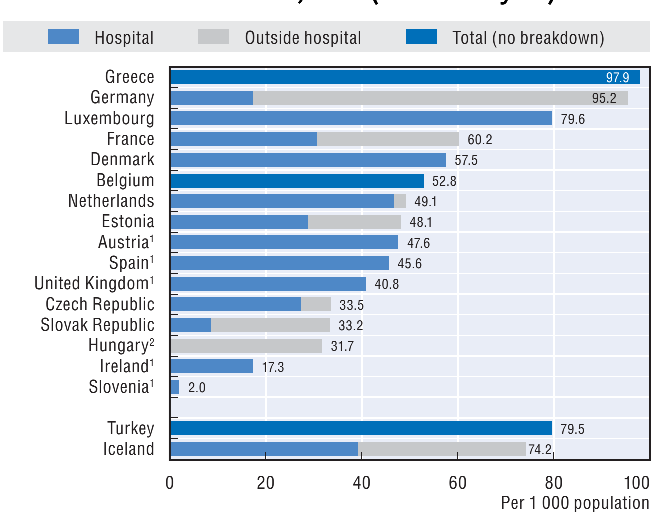
Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.
2. Any equipment in the private sector is not included.

Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932704323

3.4.3. MRI exams, 2010 (or nearest year)

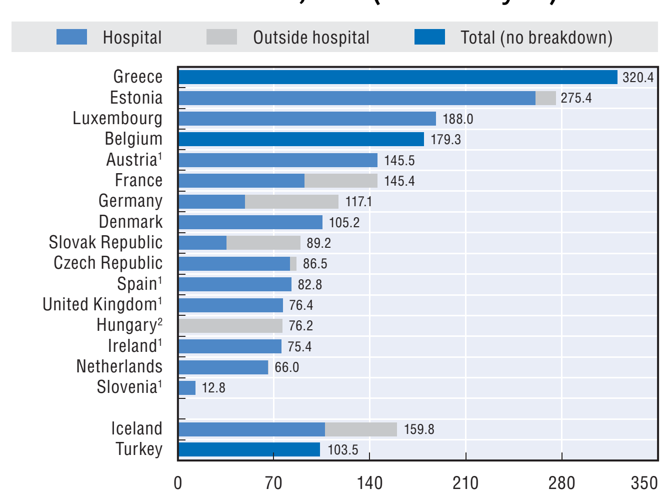


1. Exams outside hospital are not included.
2. Exams in hospital are not included.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704342

3.4.4. CT exams, 2010 (or nearest year)



1. Exams outside hospital are not included.
2. Exams in hospital are not included.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704361

The number of hospital beds provides an indication of the resources available for delivering services to inpatients in hospitals. This section presents data on the total number of hospital beds, including those allocated for curative care, psychiatric care, long-term care and other types of care. It does not capture the capacity of hospitals to provide same-day emergency or elective interventions.

Over the past ten years, the number of hospital beds per population has decreased in all European countries, except Greece and Turkey. On average across EU member states, the number fell by close to 2% per year, coming down from 6.5 beds per 1 000 population in 2000 to 5.3 in 2010 (Figure 3.5.1). This reduction in the number of hospital beds has been accompanied by a reduction in average length of stays (Indicator 3.7) and, in some countries, a reduction in hospital admissions and discharges (Indicator 3.6). The reduction in the number of hospital beds has been particularly pronounced in Latvia (coming down from 8.7 beds per 1 000 population in 2000 to 5.3 in 2010), Estonia, Italy and Norway.

In all countries, progress in medical technologies has enabled a move to same-day surgery and a reduced need for long hospitalisation. In many countries, the financial and economic crisis which started in 2008 also provided a further stimulus to reduce hospital capacity as part of policies to reduce public spending on health (European Observatory on Health Systems and Policies, 2012). For example, in Ireland, policies to reduce costs in the hospital sector in the aftermath of the crisis included a reduction in hospital beds, and incentives to reduce the length of stays in hospitals and increase day care (Thomas and Burke, 2012).

In 2010, Austria and Germany had the highest number of hospital beds per capita, with around eight beds per 1 000 population (Figure 3.5.1). The high supply of hospital beds in these two countries is associated with a large number of hospital admissions/discharges, as well as long average length of stays in Germany. Turkey had the lowest number of beds per capita, although their number increased markedly over the past decade. Ireland, Sweden and the United Kingdom also have a relatively low number of hospital beds (although the data in the United Kingdom and Ireland do not include beds in private hospitals).

More than two-thirds of hospital beds are allocated for curative care on average across EU member states (Figure 3.5.2). The rest of the beds are allocated for psychiatric care (15%), long-term care (8%) and other types of care (8%). However, in some countries, the share of beds allocated for psychiatric care and long-term care is much greater than the average. In Finland, a greater share of hospital beds is allocated for long-term care (32%) than for curative care (30%), because local governments (municipalities) use some beds in health care centres (which are defined as hospitals) for providing some institution-based long-term care (OECD, 2005).

The share of beds in private for-profit hospitals has increased in some countries over the past decade. In Germany, the share increased from 23% of all beds in 2002 to 30% in 2010, accompanied by a decrease in the share of beds in public hospitals from 45% to 41%. The remaining beds were in private not-for-profit hospitals (whose share also declined slightly). In France, the share of beds in private for-profit hospitals also increased during the past decade but to a lesser extent, from 20% in 2000 to 23% in 2010, while the proportion of beds in public hospitals decreased from 66% in 2000 to 63% in 2010 (OECD, 2012a).

In several countries, the reduction in the overall number of hospital beds has been accompanied by an increase in their occupancy rates. Since 2000, the occupancy rate of curative care beds increased significantly in Ireland (from 85% in 2000 to 91% in 2010), Norway (from 85% to 93%) and Switzerland (from 85% to 88%) (OECD, 2012a).

Definition and comparability

Hospital beds are defined as all beds that are regularly maintained and staffed and are immediately available for use. They include beds in general hospitals, mental health and substance abuse hospitals, and other specialty hospitals. Beds in nursing and residential care facilities are excluded.

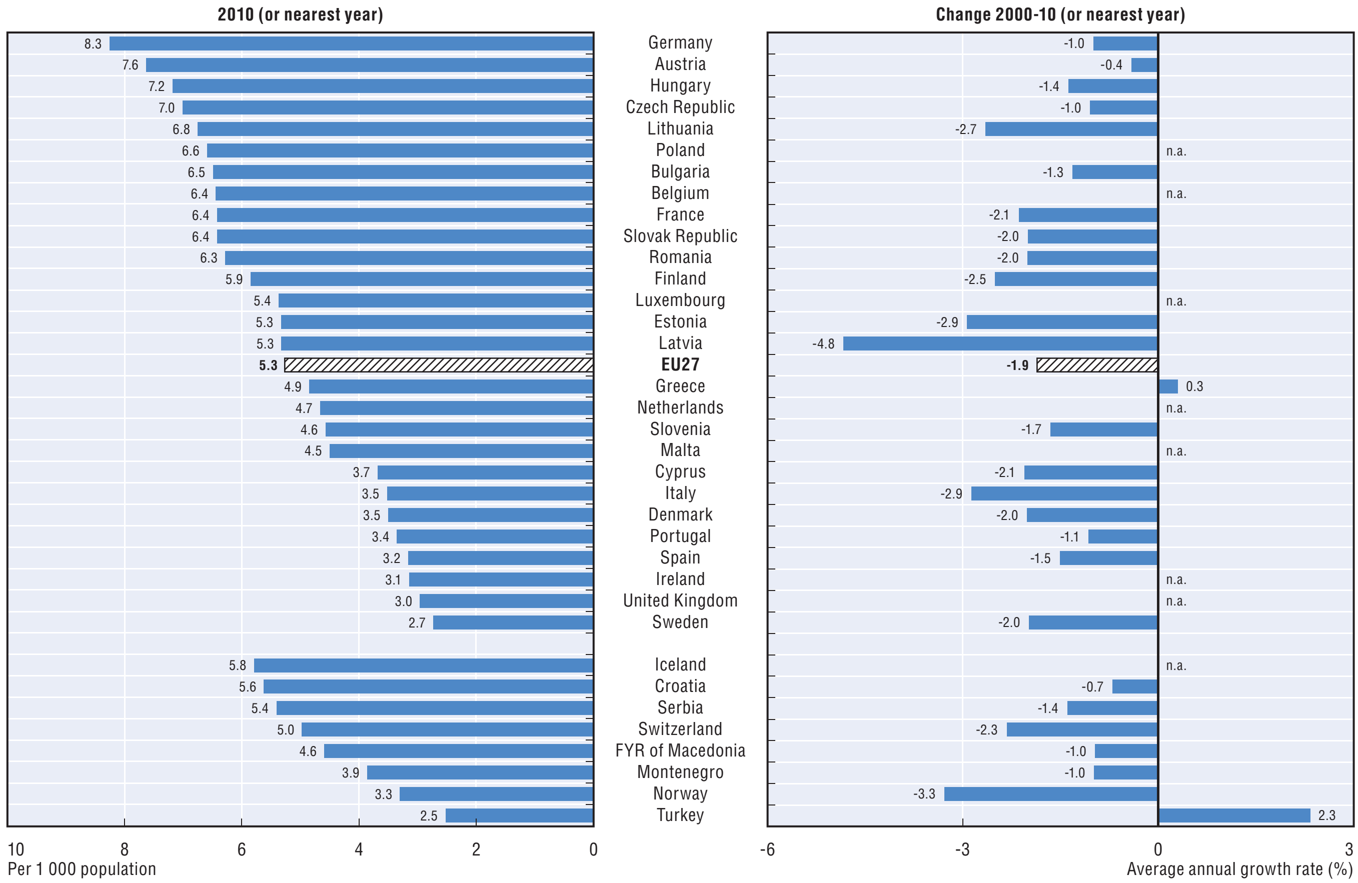
Curative care beds are beds accommodating patients where the principal intent is to do one or more of the following: cure physical illness or provide definitive treatment of injury, perform surgery, relieve symptoms of physical illness or injury (excluding palliative care), reduce severity of physical illness or injury, protect against exacerbation and/or complication of physical illness and/or injury which could threaten life or normal functions, perform diagnostic or therapeutic procedures, manage labour (obstetric).

Psychiatric care beds are beds accommodating patients with mental health problems. They include beds in psychiatric departments of general hospitals, and all beds in mental health and substance abuse hospitals.

Long-term care beds are hospital beds accommodating patients requiring long-term care due to chronic impairments and a reduced degree of independence in activities of daily living. They include beds in long-term care departments of general hospitals, beds for long-term care in specialty hospitals, and beds for palliative care.

Data for some countries do not cover all hospitals. In Ireland and the United Kingdom, data are restricted to public or publicly-funded hospitals only.

3.5.1. Hospital beds per 1 000 population, 2010 and change between 2000 and 2010

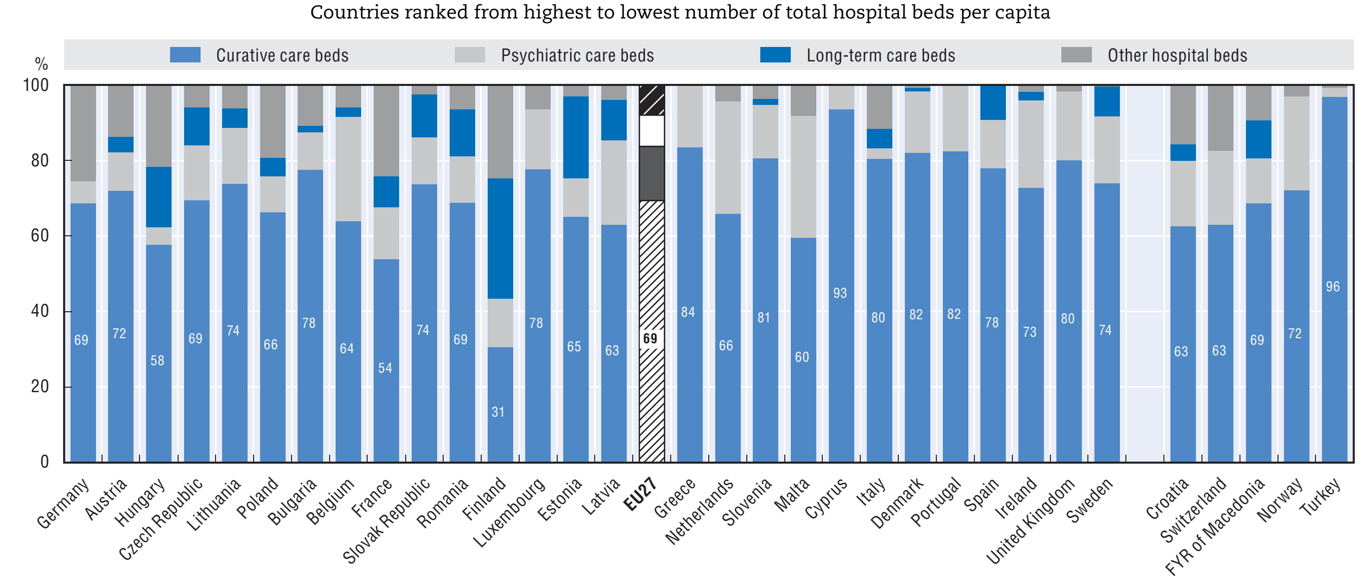


Source: OECD Health Data 2012; Eurostat Statistics Database; WHO European Health for All Database.

StatLink http://dx.doi.org/10.1787/888932704380

3.5.2. Hospital beds by function of health care, 2010 (or nearest year)

Countries ranked from highest to lowest number of total hospital beds per capita



Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932704399

Hospital discharges measure the number of people who were released after staying at least one night in hospital. Together with the average length of stay, they are important indicators of hospital activities. Hospital activities are affected by a number of factors, including the capacity of hospitals to treat patients, the ability of the primary care sector to prevent avoidable hospital admissions, and the availability of post-acute care settings to provide rehabilitative and long-term care services.

In 2010, hospital discharge rates were the highest in Austria, Bulgaria, Germany and Romania (Figure 3.6.1). They were the lowest in Cyprus, Portugal and Spain as well as in the Former Yugoslav Republic of Macedonia. In general, countries that have a greater number of hospital beds also tend to have higher discharge rates. For example, the number of hospital beds per capita in Austria and Germany is more than two-times greater than in Portugal and Spain, and discharge rates are also more than two-times greater (see Indicator 3.5).

Trends in hospital discharge rates over the past decade vary widely across EU member states. In about one-third of EU member states (including Austria, Bulgaria, Germany, Greece, Poland and Romania), discharge rates have increased between 2000 and 2010. In a second group of countries (including the Czech Republic, Denmark, Slovenia, Sweden and the United Kingdom), they have remained stable, while in the third group (including Finland, France, Hungary, Italy and Luxembourg), discharge rates fell between 2000 and 2010.

Trends in hospital discharges may reflect several factors that are not easily disentangled. Demand for hospitalisation may grow as populations age, given that older people account for a disproportionately high percentage of hospital discharges in all countries. For example, in Austria and Germany, over 40% of all hospital discharges in 2010 were for people aged 65 and over, more than twice their share of the population (17.6% and 20.7% respectively). However, population ageing alone may be a less important factor in explaining trends in hospitalisation rates than changes in medical technologies and clinical practices. A significant body of research shows that the diffusion of new medical interventions gradually extends to older population groups, as interventions become safer and more effective for people at older ages (*e.g.* Dormont and Huber, 2006). However, the diffusion of new medical technologies may also involve a reduction in hospitalisation if it entails a shift from procedures requiring overnight stays in hospitals to same-day procedures. In the group of countries where discharge rates have decreased over the past decade, the reduction can be explained at least partly by a strong rise in the number of day surgeries (see Indicator 3.9, for example, for evidence on the rise in day surgeries for cataracts).

Lithuania has the highest discharge rate for circulatory diseases, followed by Bulgaria and Germany (Figure 3.6.2). The high rates in Bulgaria and Lithuania are associated with high mortality rates from circulatory diseases, which may be used as a proxy indicator for the occurrence of these diseases (see Indicator 1.4). But Germany does not have high mortality rates for circulatory diseases, suggesting that different clinical practices may play a role in explaining high discharge rates.

Austria and Germany have the highest discharge rates for cancer, followed by Hungary (Figure 3.6.3). While the high rate in Hungary is associated with a high mortality rate from cancer (which may also be used as a proxy for the occurrence of the disease; see Indicator 1.5), this is not the case for Austria and Germany. In Austria, the high rate is associated with a high rate of hospital readmissions for further investigation and treatment of cancer patients (EC, 2008a).

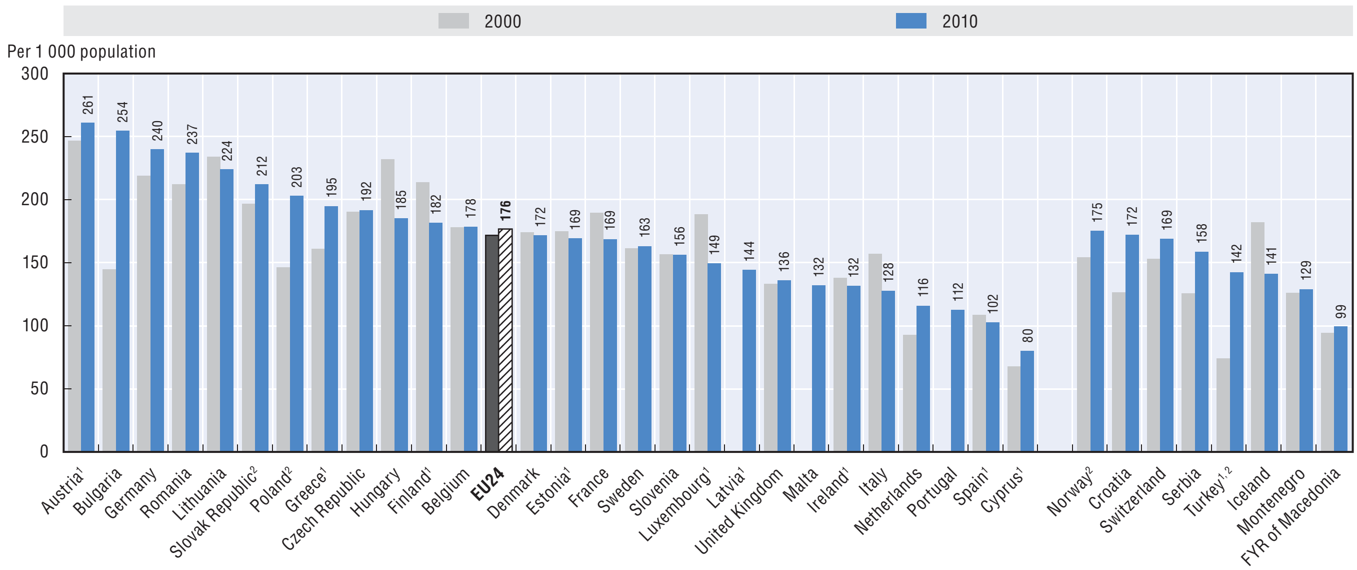
Definition and comparability

Discharge is defined as the release of a patient who has stayed at least one night in hospital. It includes deaths in hospital following inpatient care. Same-day separations are usually excluded, with the exception of Norway, Poland, the Slovak Republic and Turkey which include some same-day separations.

Healthy babies born in hospitals are excluded completely (or almost completely) from hospital discharge rates in several countries (*e.g.* Austria, Cyprus, Estonia, Finland, Greece, Ireland, Latvia, Luxembourg, Spain, Turkey). These comprise 3-7% of all discharges.

Data for some countries do not cover all hospitals. In Denmark, Ireland and the United Kingdom, data are restricted to public or publicly-funded hospitals only. Data for Portugal relate only to public hospitals on the mainland. Data for Austria, Estonia, Luxembourg and the Netherlands include only acute care/short-stay hospitals.

3.6.1. Hospital discharges per 1 000 population, 2000 and 2010 (or nearest year)

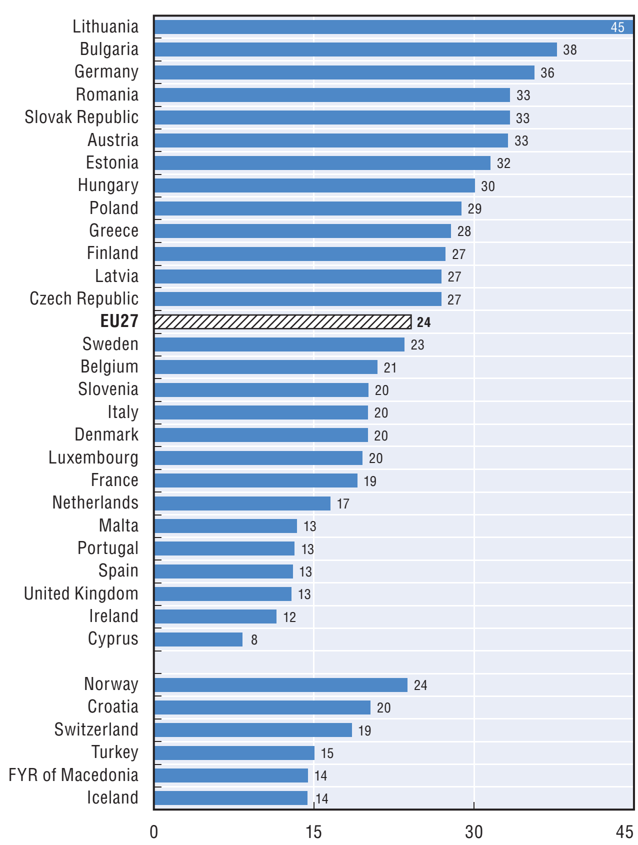


1. Excludes discharges of healthy babies born in hospital (between 3-7% of all discharges).
2. Includes same-day discharges.

Source: *OECD Health Data 2012; Eurostat Statistics Database; WHO European Health for All Database.*

StatLink http://dx.doi.org/10.1787/888932704418

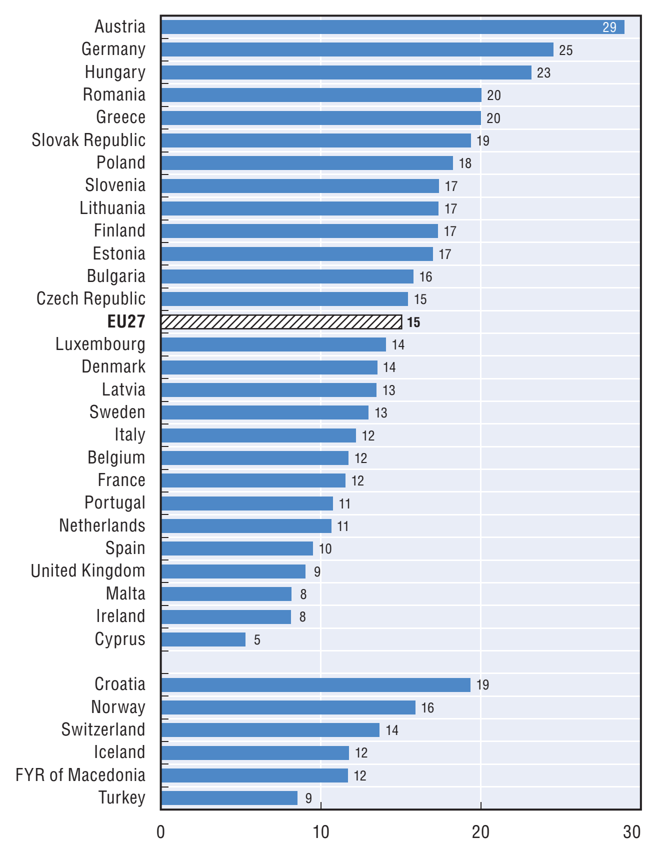
3.6.2. Hospital discharges for circulatory diseases per 1 000 population, 2010 (or nearest year)



Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932704437

3.6.3. Hospital discharges for cancers per 1 000 population, 2010 (or nearest year)



Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932704456

The average length of stay in hospitals is often regarded as an indicator of efficiency, since a shorter stay may reduce the cost per discharge and shift care from inpatient to less expensive post-acute settings. However, shorter stays tend to be more service intensive and more costly per day. Too short a length of stay could also have adverse effects on health outcomes, or reduce the comfort and recovery of the patient. If this leads to a rising readmission rate, costs per episode of illness may fall little, or even rise.

In 2010, the average length of stay in hospitals was the lowest in Turkey, Norway and Denmark (Figure 3.7.1). It was the highest in Finland, followed by the Former Yugoslav Republic of Macedonia, Croatia, Switzerland and Germany. The high average length of stay in Finland is due to a large proportion of beds allocated for convalescent patients and long-term care (see Indicator 3.5). Focusing only on stays in acute care units, the average length of stay in Finland is not greater, indeed is even lower than in most other European countries.

The average length of stay in hospitals has decreased over the past decade in all European countries, falling from 8.2 days in 2000 to 6.9 days in 2010 on average in EU member states (Figure 3.7.1). The reduction in average length of stay was particularly marked in Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia and Switzerland. It also decreased in the Netherlands and the United Kingdom. Several factors explain this general decline, including the use of less invasive surgical procedures, changes in hospital payment methods, and the expansion of early discharge programmes enabling patients to return to their home to receive follow-up care.

A growing number of countries (*e.g.* France, Germany, Poland) have moved to prospective payment methods often based on diagnosis-related groups (DRGs) to set payments based on the estimated cost of hospital care for different patient groups in advance of service provision. These payment methods have the advantage of encouraging providers to reduce the cost of each episode of care (OECD, 2010b). In Switzerland, the move from per diem payments to diagnosis-related groups (DRG) based payments has contributed to the reduction in length of stay in those cantons that have modified their payment system (OECD and WHO, 2011).

In the Netherlands, the introduction of a new payment system for hospitals in 2006 also provided incentives to reduce length of stay. Prior to the reform, hospitals were paid on a fixed amount per bed and beddays. Since 2006, a growing share of hospital payments is determined through negotiations between insurers and hospitals, based on the Dutch version of DRGs (Westert and Klazinga, 2011). While the average length of stay in hospitals in the Netherlands used to be above the EU average in 2000, it has now fallen below. Still, a number of additional interventions have been identified by hospital staff to further reduce length of stay in Dutch hospitals, including a further increase in the share of same-day surgery, reducing waiting times for examinations, implementing acute stroke units, and promoting early discharge planning and follow-up (Borghans *et al.*, 2012).

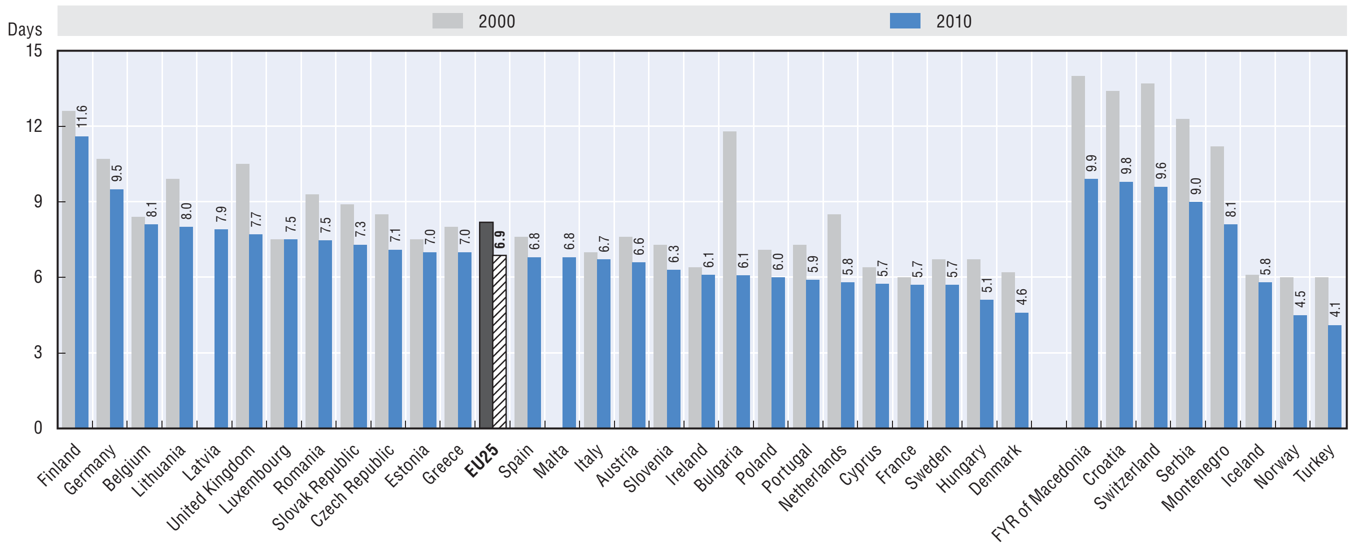
Focusing on average length of stay for specific diseases or conditions can remove some of the heterogeneity that may arise from the different mix and severity of conditions across countries. Figure 3.7.2 shows that the average length of stay for a normal delivery ranges from less than two days in Turkey, Iceland, the United Kingdom and the Netherlands, to five days or more in the Slovak Republic, Romania, Croatia and Switzerland. The length of stay for a normal delivery has become shorter in nearly all countries over the past decade, dropping from five days in 2000 to about three-and-a-half days in 2010 on average in EU member states.

Lengths of stay following acute myocardial infarction (AMI, or heart attack) also declined over the past ten years. In 2010, it was the lowest in Denmark, Norway and Turkey, at four days or less. At the other end of the scale, it was highest in Estonia, Germany, Lithuania and Croatia, at over nine days (Figure 3.7.3). In this latter group of countries, long average length of stays may be due to the fact that some patients originally admitted for AMI are no longer receiving acute care, but nonetheless stay in hospitals for a certain period to receive post-acute care.

Definition and comparability

Average length of stay (ALOS) refers to the average number of days that patients spend in hospital. It is generally measured by dividing the total number of days stayed by all inpatients during a year by the number of admissions or discharges. Day cases are excluded.

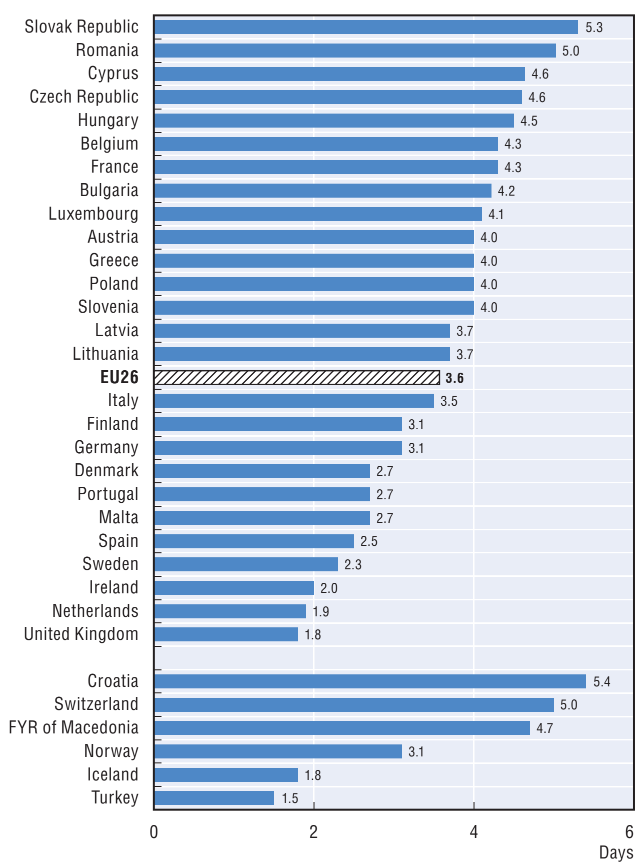
3.7.1. Average length of stay in hospital for all causes, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012; Eurostat Statistics Database; WHO European Health for All Database.

StatLink http://dx.doi.org/10.1787/888932704475

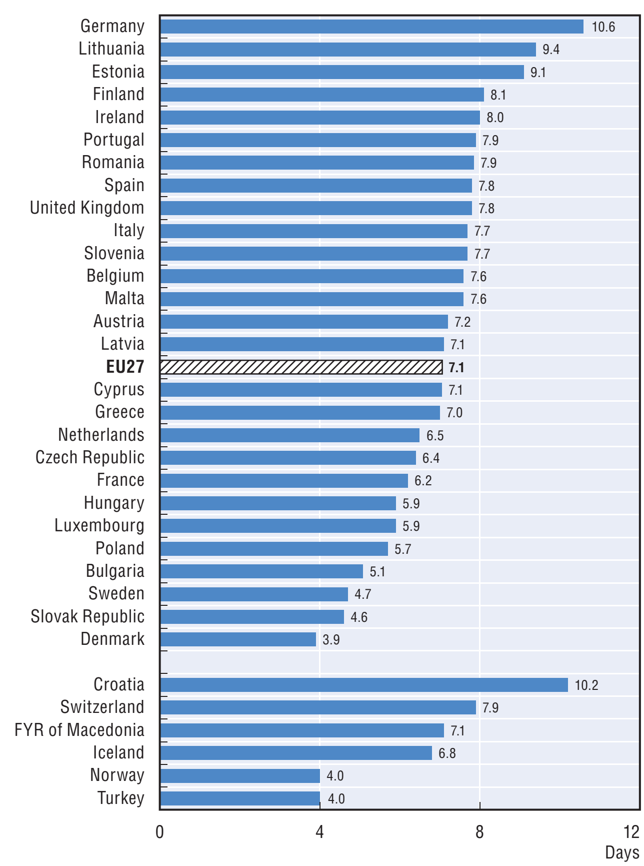
3.7.2. Average length of stay for normal delivery, 2010 (or nearest year)



Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932704494

3.7.3. Average length of stay for acute myocardial infarction (AMI), 2010 (or nearest year)



Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932704513

Heart diseases are a leading cause of hospitalisation and death in European countries (see Indicator 1.4). Coronary angioplasty is a procedure that has revolutionised the treatment of ischemic heart diseases over the past twenty years, involving the use of a minimally invasive technique to re-open the obstructed coronary arteries rather than an open-chest bypass surgery. The placement of a stent to keep the artery open accompanies the majority of angioplasties.

There is considerable variation across European countries in the use of coronary angioplasty (Figure 3.8.1). Germany, Belgium and Austria had the highest rates of angioplasty in 2010, although the rates in these three countries are overestimated because they are based on a count of all procedures rather than based on a count of patients (see the box on "Definition and comparability"). The angioplasty rate was the lowest in Ireland, Poland, Romania and the United Kingdom. However, in these latter two countries, the data do not cover activities in private hospitals, resulting in some underestimation.

The use of angioplasty has increased rapidly since 1990 in most European countries, overtaking coronary bypass surgery as the preferred method of revascularisation around the mid-1990s – about the same time that the first published trials of the efficacy of coronary stenting began to appear (Moïse, 2003). In most European countries, angioplasty now accounts for at least 70% of all revascularisations (Figure 3.8.2). The EU average is close to 80%. For a large number of EU countries, the growth in angioplasty was higher between 2000 and 2005, compared to the 2005-10 period. Countries such as Romania, Spain and Sweden, which had low rates of angioplasty in 2000, have witnessed high annual growth rates since then. Whilst variation in the use of angioplasty persists, the degree of variation has diminished over the past decade, as many countries have caught up with the early adopters of this technology.

Coronary angioplasty has expanded surgical treatment options to wider sections of the patient population, although a UK study found that approximately 30% of all angioplasty procedures are a direct substitute for bypass surgery (McGuire *et al.*, 2010). Angioplasty is however not a perfect substitute since bypass surgery is still the preferred method for treating patients with multiple-vessel obstructions, diabetes and other conditions (Taggart, 2009).

Coronary angioplasty is an expensive intervention, but it is much less costly than a coronary bypass surgery because it is less invasive. The estimated price of an angioplasty on average across European countries was about EUR 5 900 in 2009 compared with EUR 15 300 for a coronary bypass. Hence, for patients who would otherwise have received bypass surgery, the introduction of angioplasty has not only improved outcomes but has also decreased costs. However, because of the expansion of surgical interventions, overall costs have risen.

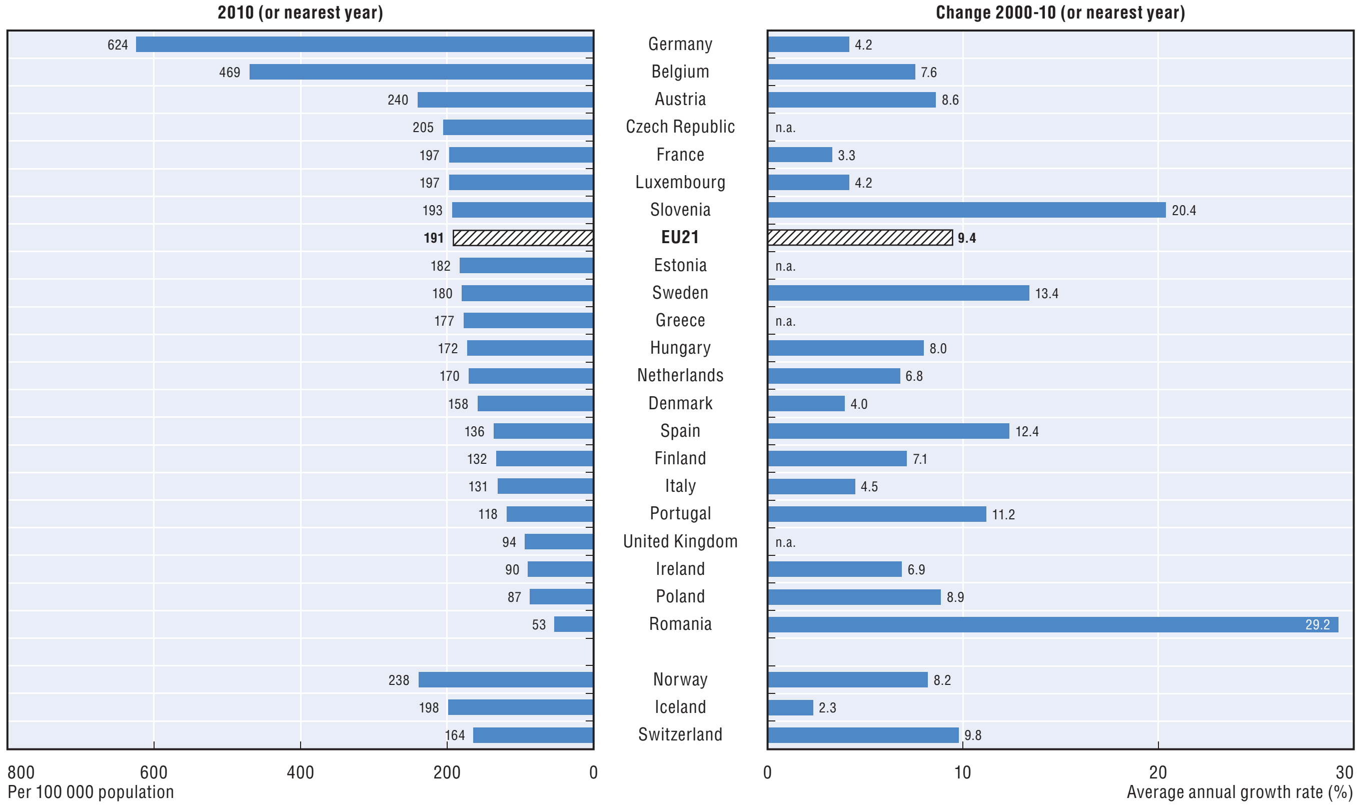
A number of reasons can explain cross-country variations in the rate of angioplasty, including: *i)* differences in the incidence and prevalence of ischemic heart diseases; *ii)* differences in the capacity to deliver and pay for these procedures; *iii)* differences in clinical treatment guidelines and practices; and *iv)* differences in coding and reporting practices.

Definition and comparability

The data relate to inpatient procedures, excluding coronary angioplasties performed or recorded as day cases. In most countries, the data refer to the number of patients who have received an angioplasty during a hospital stay, except in Austria, Belgium, Germany and Slovenia where they are based on a count of all procedures (including possibly several procedures per patient), leading to an overestimation compared with other countries.

In Ireland and the United Kingdom, the data only include activities in publicly-funded hospitals, resulting in an underestimation (it is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals). Data for Portugal relate only to public hospitals on the mainland.

3.8.1. Coronary angioplasty per 100 000 population, 2010 and change between 2000 and 2010

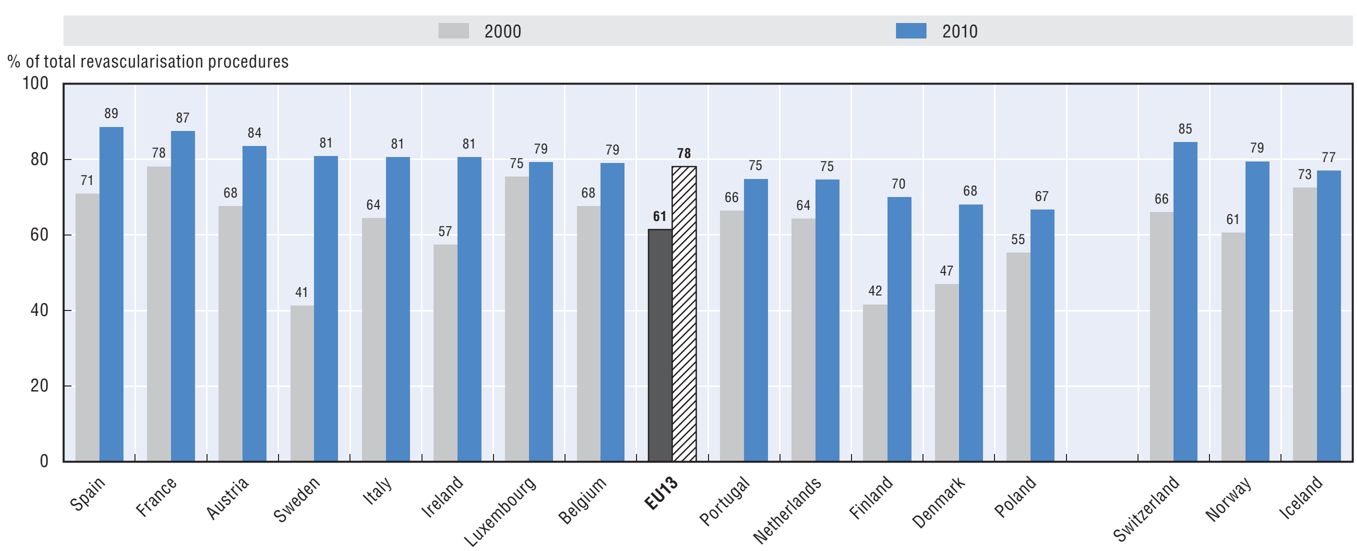


Note: Some of the variations across countries are due to different classification systems and recording practices.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932704532

3.8.2. Coronary angioplasty as a share of total revascularisation procedures, 2000 and 2010 (or nearest year)



Note: Revascularisation procedures include coronary bypass and angioplasty.

Source: *OECD Health Data 2012*.

StatLink http://dx.doi.org/10.1787/888932704551

In the past two decades, the number of surgical procedures carried out on a same-day basis, without any need for hospitalisation, has grown in European countries. Advances in medical technologies, particularly the diffusion of less invasive surgical interventions, and better anaesthetics have made this development possible. These innovations have also improved patient safety and health outcomes for patients, and have in many cases reduced the unit cost per intervention by shortening the length of stay in hospitals. However, the impact of the rise in same-day surgeries on health spending depends not only on changes in their unit cost, but also on the growth in the volume of procedures performed. There is also a need to take into account any additional cost related to post-acute care and community health services following the intervention.

Cataract surgery provides a good example of a high volume surgery which is now carried out predominantly on a same-day basis in most European countries. The operation began to change from an inpatient to a same-day surgery in the 1980s in some countries such as Sweden (Henning *et al.*, 1985), with the movement then spreading to other European countries at different speed. From a medical point of view, a cataract surgery using modern techniques should not normally require an hospitalisation. However, in some specific cases (*e.g.* general anesthesia or severe comorbidities), a hospital stay may be required (Lundström *et al.*, 2012).

Day surgery now accounts for over 90% of all cataract surgeries in many countries (Figure 3.9.1). However, the use of day surgery is still relatively low in some countries, such as Lithuania, Poland and the Slovak Republic. This may be explained by more advantageous reimbursement for inpatient stays, national regulations, obstacles to changing individual practices of surgeons and anaesthetists, and tradition (Castoro *et al.*, 2007). These low rates may also reflect limitations in data coverage of outpatient activities in hospitals or outside hospitals.

The number of cataract surgeries performed on a same-day basis has grown very rapidly in some countries over the past ten years, such as in Austria and Portugal (Figure 3.9.2), catching up to the high rates already observed in 2000 in Nordic countries, the Netherlands and Spain. In Portugal, the strong rise in the number of cataract surgeries performed as day cases rather than as inpatients has led to a sharp increase in the share of same-day surgery, rising from less than 10% in 2000 to over 90% in 2010 (Figure 3.9.1). In France, this share also increased from 32% in 2000 to 80% in 2010. In Luxembourg, the number of cataract surgeries carried out as day cases and outpatient cases (in or outside hospitals) has also risen rapidly, although they still account for only about half of all cataract surgeries.

Cataract surgery has now become the most frequent surgical procedure in many European countries. The operation is performed more often in women than men (around 60% *vs.* 40%), because it is related to age and women live longer (Lundström *et al.*, 2012). While population ageing is one of the factors behind the rise in cataract surgery, the proven success, safety and cost-effectiveness of the operation as a day procedure has been a more important factor (Fedorowicz *et al.*, 2004).

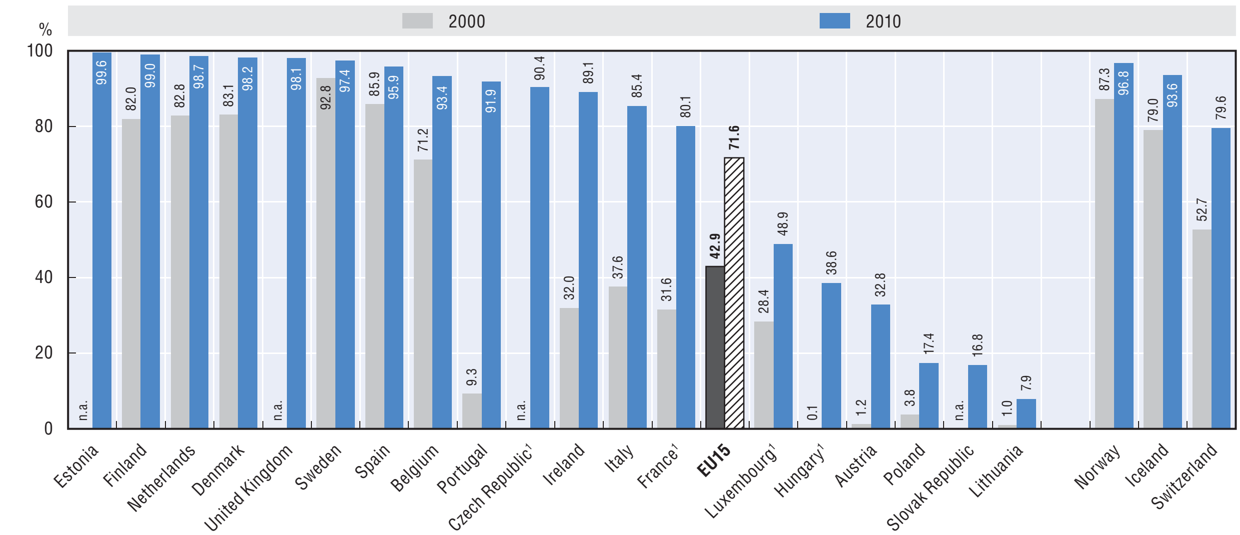
In Sweden, there is evidence that cataract surgeries are now being performed on patients suffering from less severe vision problems compared to ten years ago. This raises the issue of how the needs of these patients should be prioritised relative to other patient groups (Swedish Association of Local Authorities and Regions and National Board of Health and Welfare, 2010). The European Registry of Quality Outcomes for Cataract and Refractive Surgery recently developed evidence-based guidelines to improve treatment and standards of care for cataract surgery (Lundström *et al.*, 2012).

Definition and comparability

Cataract surgeries consist of removing the lens of the eye because of the presence of cataracts which are partially or completely clouding the lens, and replacing it with an artificial lens. The surgery may involve in certain cases an overnight stay in hospital (inpatient cases), but in many countries it is now performed mainly as day cases (defined as a patient admitted to the hospital and discharged the same day) or outpatient cases in hospitals or outside hospitals (without any formal admission and discharge). However, the data for many countries do not include such outpatient cases in hospitals or outside hospitals, with the exception of the Czech Republic, France, Hungary and Luxembourg where they are included. Caution is therefore required in making cross-country comparisons of available data, given the incomplete coverage of same-day surgeries in several countries.

In Denmark, Ireland, the Netherlands and the United Kingdom, the data only include cataract surgeries carried out in public hospitals, excluding any procedures performed in private hospitals and in the ambulatory sector (in Ireland, it is estimated that over 10% of all hospital activity is undertaken in private hospitals). The data for Spain only partially include activities in private hospitals.

3.9.1. Share of cataract surgeries carried out as day cases, 2000 and 2010 (or nearest year)

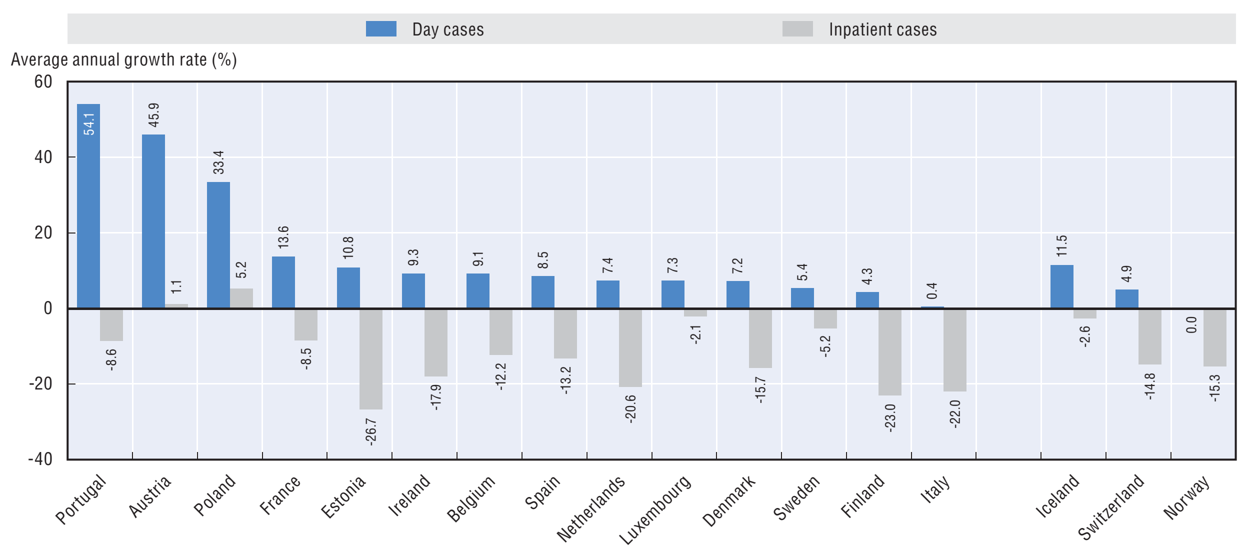


1. Data for the Czech Republic, France, Luxembourg and Hungary include outpatient cases in hospitals and outside hospitals.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932704570

3.9.2. Growth in cataract surgeries per capita, day cases and inpatient cases, 2000 to 2010 (or nearest year)



Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932704589

Significant advancements in surgical treatment have provided effective options to reduce the pain and disability associated with certain musculoskeletal conditions. Joint replacement surgery (hip and knee replacement) is considered the most effective intervention for severe osteoarthritis, reducing pain and disability and restoring some patients to near normal function.

Ostheoarthritis is one of the ten most disabling diseases in developed countries. Worldwide estimates are that 9.6% of men and 18.0% of women aged over 60 years have symptomatic osteoarthritis, including moderate and severe forms (WHO, 2010a). Age is the strongest predictor of the development and progression of osteoarthritis. It is more common in women, increasing after the age of 50 especially in the hand and knee. Other risk factors include obesity, physical inactivity, smoking, excess alcohol and injuries (EC, 2008b). While joint replacement surgery is mainly carried out among people aged 60 and over, it can also be performed among people at younger ages.

Austria, Belgium, Germany and Switzerland have the highest rates of hip replacement (Figure 3.10.1). These countries also have the highest rates of knee replacement, along with Finland (Figure 3.10.2). Differences in population structure may explain part of these variations across countries, and age-standardisation reduces to some extent the variations across countries. But still, large differences remain and the country ranking does not change significantly after age standardisation (McPherson *et al.*, 2012). Beyond different population structures, a number of other reasons may explain cross-country variations in the rate of hip and knee replacement: *i)* differences in the prevalence of osteoarthritis problems; *ii)* differences in the capacity to deliver and pay for these expensive procedures; and *iii)* differences in clinical treatment guidelines and practices.

The rate of hip and knee replacement has increased over the past ten years in many European countries, due in part to population ageing but also the growing use of these interventions to improve functioning among elderly people (Figures 3.10.3 and 3.10.4). In Denmark, the hip replacement rate increased by 40% between 2000 and 2010, while the knee replacement rate more than tripled. Similarly, in Spain, the hip replacement rate increased by 25% and the knee replacement rate more than doubled during the past decade. The growth rate for both interventions was somewhat slower in France, but still the hip replacement rate increased by nearly 10% while the knee replacement rate rose by 60% between 2000 and 2010.

The growing volume of hip and knee replacement is contributing to health expenditure growth since these are expensive interventions. In 2009, the estimated price of a hip replacement on average across European countries was about EUR 7 300, while the price of a knee replacement was EUR 6 800.

Definition and comparability

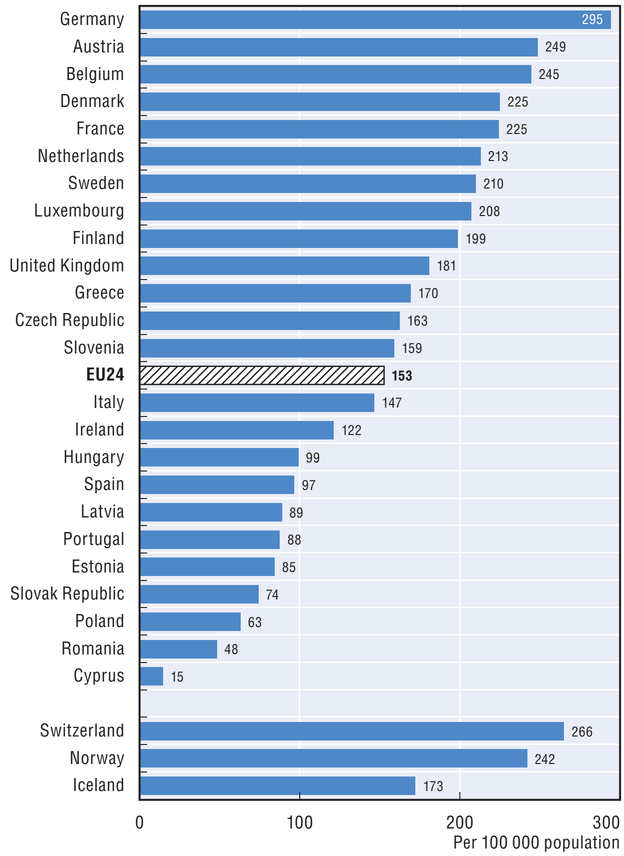
Hip replacement is a surgical procedure in which the hip joint is replaced by a prosthetic implant. It is generally conducted to relieve arthritis pain or treat severe physical joint damage following hip fracture.

Knee replacement is a surgical procedure to replace the weight-bearing surfaces of the knee joint to relieve the pain and disability of osteoarthritis. It may be performed for other knee diseases such as rheumatoid arthritis.

Classification systems and registration practices vary across countries which may affect the comparability of the data. Some countries only include total hip replacement (*e.g.* Estonia) while most also include partial replacement. Certain countries only include initial knee replacement while others also include revisions.

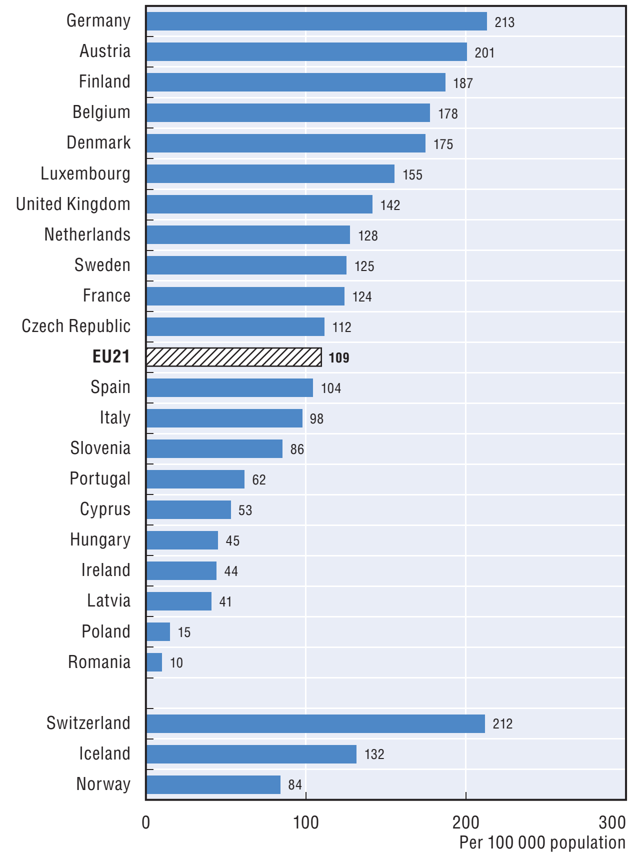
In Ireland, the data only include activities in publicly-funded hospitals (it is estimated that over 10% of all hospital activity is undertaken in private hospitals).

3.10.1. Hip replacement surgery, per 100 000 population, 2010 (or nearest year)



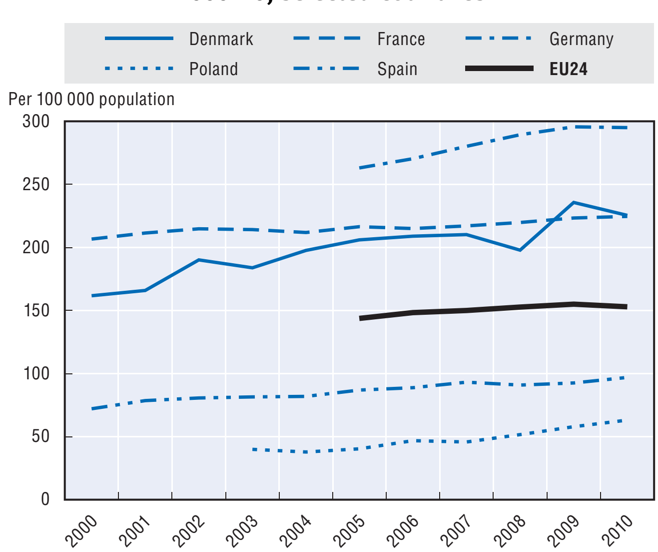
Source: *OECD Health Data 2012; Eurostat Statistics Database.*
StatLink http://dx.doi.org/10.1787/888932704608

3.10.2. Knee replacement surgery, per 100 000 population, 2010 (or nearest year)



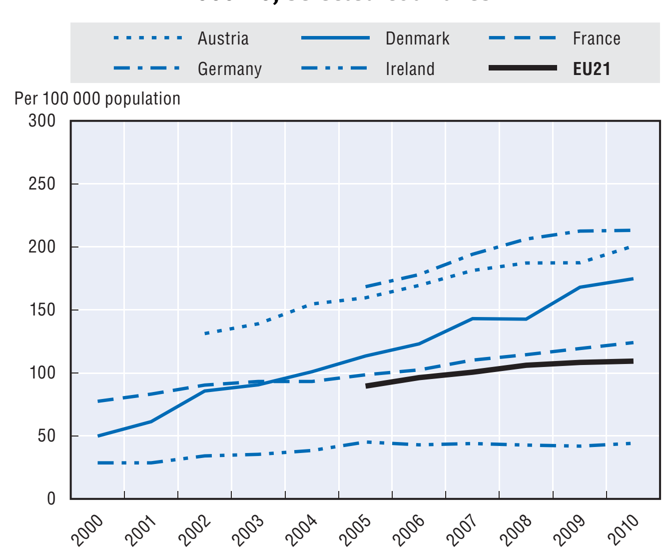
Source: *OECD Health Data 2012; Eurostat Statistics Database.*
StatLink http://dx.doi.org/10.1787/888932704627

3.10.3. Trend in hip replacement surgery, 2000-10, selected countries



Source: *OECD Health Data 2012; Eurostat Statistics Database.*
StatLink http://dx.doi.org/10.1787/888932704646

3.10.4. Trend in knee replacement surgery, 2000-10, selected countries



Source: *OECD Health Data 2012; Eurostat Statistics Database.*
StatLink http://dx.doi.org/10.1787/888932704665

The consumption of pharmaceuticals has increased over the past decade not only in terms of expenditure (see Indicator 5.5 "Pharmaceutical expenditure"), but also in terms of the volume or quantity of medicines consumed. This section reviews trends in the volume of consumption of three categories of pharmaceuticals: antibiotics, antidiabetics and antidepressants. Consumption of these medicines is measured through the defined daily dose (DDD) unit, as recommended by the WHO Collaborating Center for Drug Statistics (see the box on "Definition and comparability").

Antibiotics should not be used needlessly, as there is a clear correlation between their use and the emergence of resistant bacterial strains (Bronzwaer *et al.*, 2002; Goossens *et al.*, 2005). As with any other prescribed medicines, over-prescribing exposes patients unnecessarily to risks of side-effects without achieving more rapid recovery (Fahey *et al.*, 2004).

The use of antibiotics varies across European countries, ranging from 10 DDDs per 1 000 people per day in Latvia, the Netherlands and Romania, to over 30 in Greece and Cyprus (Figure 3.11.1). Consumption has stabilised in several countries over the past decade, and it has decreased in some countries including Estonia, France, Hungary, Portugal and Slovenia. But antibiotic use has risen in other countries such as Belgium, Greece and Italy which already had higher-than-average consumption in 2000, thereby widening the gap with other European countries. One way of reducing unnecessary use is to avoid prescribing them for mild and/or viral infections. Many countries have launched information campaigns targeting physicians and patients to reduce consumption. At the international level, WHO launched in 2011 a campaign to stimulate co-ordinated efforts to promote appropriate and rational use of antibiotics (WHO, 2012b).

Clinical guidelines in different European countries recommend the use of various medicines to treat people with diabetes to reduce the risk of cardiovascular and microvascular complications (Beckman *et al.*, 2002; UKPDS, 1998). There is wide variation in the use of medicines for the treatment of diabetes across European countries, with consumption in Iceland and Estonia almost half that in Finland or Germany (Figure 3.11.2). This can be partly explained by the prevalence of diabetes, which is low in Iceland (see Indicator 1.10). However, some of the countries with the highest consumption do not have high diabetes prevalence (*e.g.* Finland, Germany and the United Kingdom). Between 2000 and 2010, the consumption of antidiabetics increased by 75% on average across EU member states. The growth rate was particularly strong in Finland, Germany and the Slovak Republic. The main reasons for this strong rise are increases in the proportion of people treated and the average dosages used in treatments (Melander *et al.*, 2006).

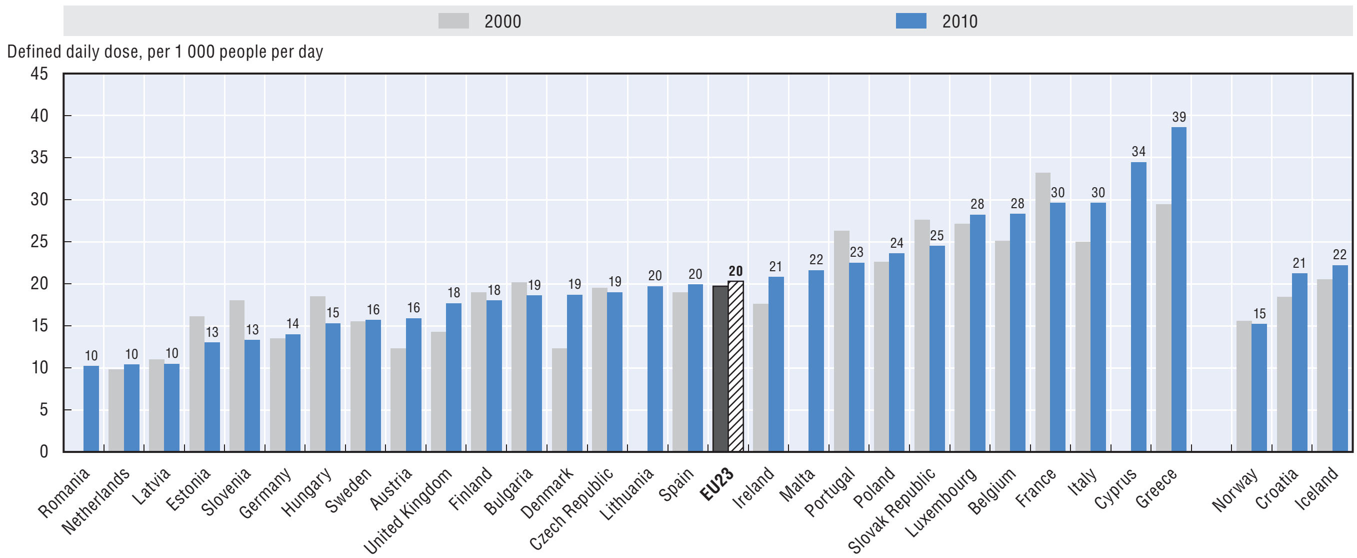
Guidelines for the pharmaceutical treatment of depression vary across countries, and there is also great variation in prescribing behaviors among general practitioners and psychiatrists not only across countries, but also among individual practitioners in each country. Iceland has the highest level of consumption of antidepressants, followed by Denmark and Portugal (Figure 3.11.3). Part of the explanation for the high consumption in Iceland is that a much higher proportion of the population receives at least one prescription for an antidepressant each year. In 2008, almost 30% of women aged 65 and over had an antidepressant prescription in Iceland, compared with less than 15% in Norway (NOMESCO, 2010). But the intensity and duration of treatments also play a role in explaining variations across countries and trends over time. In all European countries for which data is available, the consumption of antidepressants has increased a lot over the past decade, by over 80% on average across EU member states. While some analysts interpret these findings as evidence of a growing prevalence of depression, this also reflects greater efforts to provide treatments to people suffering from severe depression and greater intensity of these treatments. This rise can also be explained by the extension of the set of indications of some antidepressants to milder forms of depression, generalised anxiety disorders or social phobia, which have raised issues in some countries about the appropriateness of such extensions of prescriptions.

Definition and comparability

Defined daily dose (DDD) is the assumed average maintenance dose per day for a medicine used for its main indication in adults. DDDs are assigned to each active ingredient(s) in a given therapeutic class by international expert consensus. For instance, the DDD for oral aspirin equals 3 grams, which is the assumed maintenance daily dose to treat pain in adults. DDDs do not necessarily reflect the average daily dose actually used in a given country. DDDs can be aggregated within and across therapeutic classes of the Anatomic-Therapeutic Classification (ATC). For more detail, see *www.whocc.no/atcddd*.

Data generally refer to outpatient consumption except for the Czech Republic, Finland and Sweden, where data also include hospital consumption. Greek figures may include parallel exports.

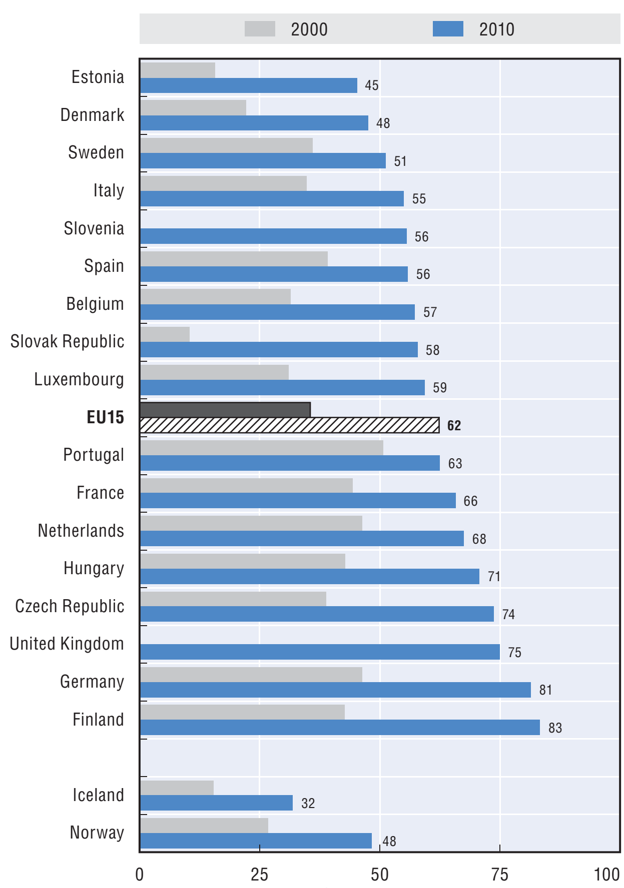
3.11.1. Antibiotics consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012; European Surveillance of Antimicrobial Consumption (ESAC) project, 2011.

StatLink http://dx.doi.org/10.1787/888932704684

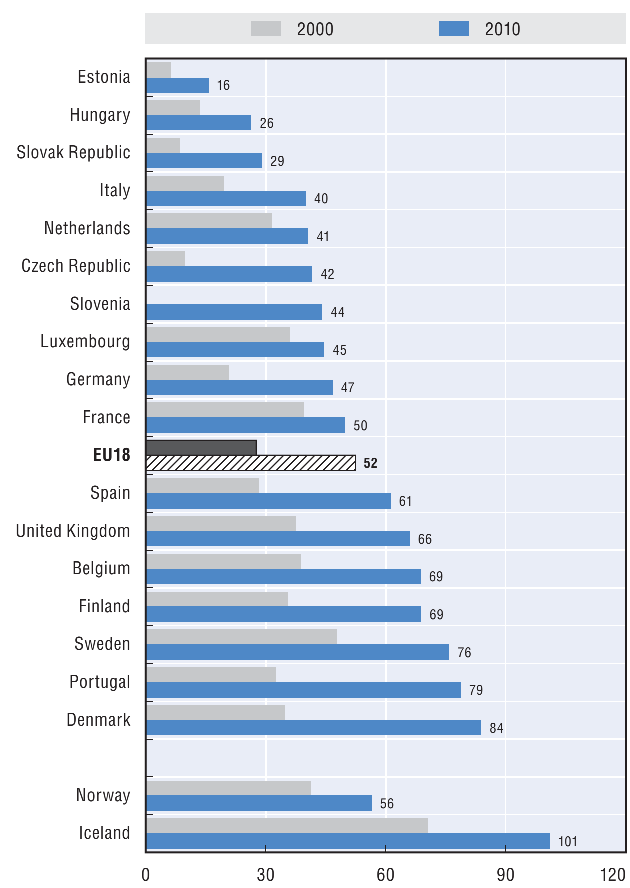
3.11.2. Antidiabetics consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704703

3.11.3. Antidepressants consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704722

All European countries endorse equity of access to health care for all people as an important policy objective. One method of gauging to what extent this objective is achieved is through assessing reports of unmet needs for health care. The problems that people report in obtaining care when they are ill or injured often reflect significant barriers to care.

Some common reasons given for not receiving care include excessive treatment costs, long waiting times, not being able to take time off work or needing to look after children, or having to travel too far to receive care. Differences in the reporting of unmet care needs *across* countries may be due partly to socio-cultural differences. However, these factors play a lesser role in explaining any differences among population groups *within* each country. It is also important to consider self-reported unmet care needs in conjunction with other indicators of potential barriers to access, such as the extent of health insurance coverage and the amount of out-of-pocket payments (see Indicators 5.1 "Coverage for health care" and 5.6 "Financing of health care").

In all European countries, a majority of the population reported no unmet care needs, according to the 2010 EU Statistics on Income and Living Conditions survey (EU-SILC). However, in some countries, significant proportions of people reported having unmet needs. In Bulgaria, Croatia, Latvia, Poland, Romania and Sweden, more than 10% of survey respondents had an unmet need for a medical examination, and the burden fell heaviest on low income earners, particularly in Bulgaria and Latvia (Figure 3.12.1). On average across EU member states, twice as many low income earners reported unmet needs as did high income earners, indicating that affordability remains an important issue for some population groups.

The most common reason for not obtaining care was because of treatment costs, and this was particularly the case in Latvia and Romania. Waiting times were an issue for some people in Bulgaria, Estonia, Finland and Poland.

Generally, women tend to report slightly more unmet health care needs than men. Aside from people in low-income groups, those who are unemployed or less educated are also more likely to report unmet needs (Figure 3.12.3).

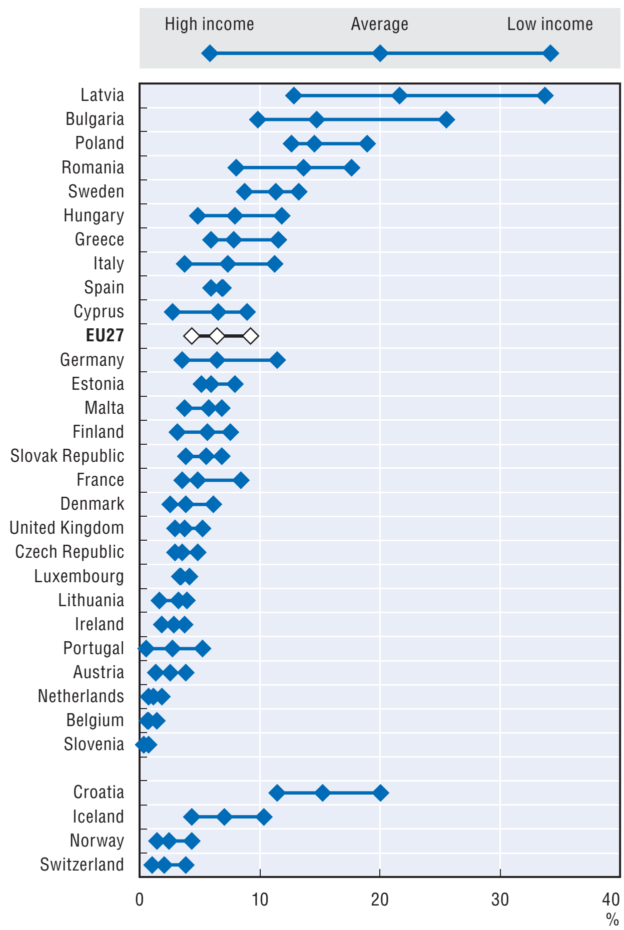
A larger proportion of the population indicates unmet needs for dental care than for medical care. Often, dental care is only partially included, or not included at all in basic health care coverage, and so must either be paid out-of-pocket, or covered through purchasing private health insurance. Latvia (21.5%) reported the highest rates of unmet need for a dental examination in 2010, followed by Bulgaria, Portugal, Romania, Cyprus, Iceland, Italy and Poland (all between 10-15%) (Figure 3.12.2). Large inequalities in unmet dental care needs were evident between high and low income groups in most of these countries. The population in Belgium, the Netherlands, Slovenia and the United Kingdom reported the lowest rates of unmet dental care needs in 2010 (between 1% and 3% only), according to EU-SILC.

Definition and comparability

Questions on unmet health care needs are a feature of a number of national and cross-national health interview surveys, including the European Union Statistics on Income and Living Conditions survey (EU-SILC). To determine unmet medical and dental care, individuals are asked in EU-SILC whether there was a time in the previous 12 months when they felt they needed health care or dental care services but did not receive them, followed by a question as to why the need for care was unmet. Common reasons given include that care was too expensive, the waiting time was too long, or wanting to wait to see if the problem would get better.

Cultural factors and policy debates may affect responses to questions about unmet care. Caution is therefore needed in comparing the magnitude of inequalities across countries.

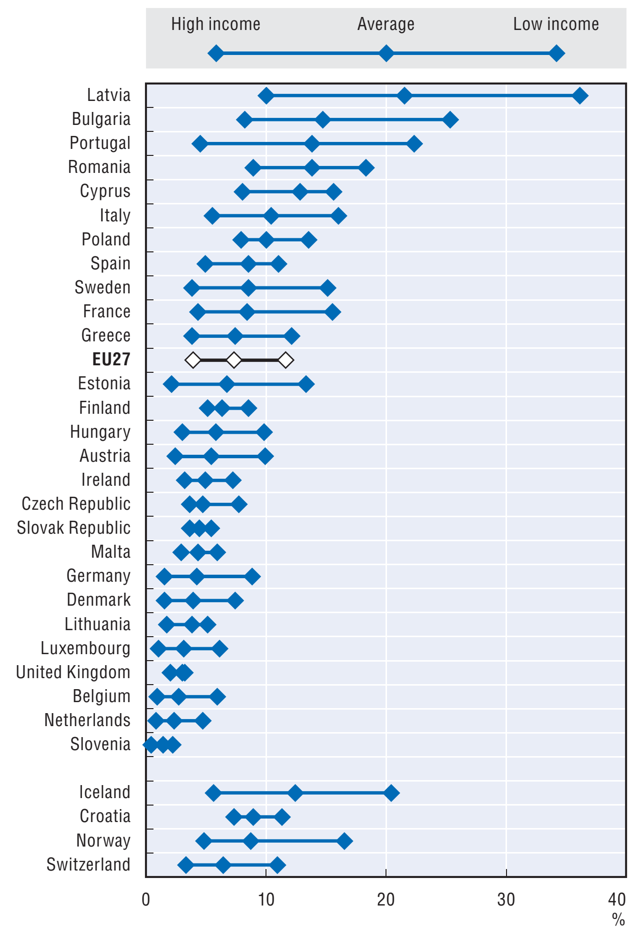
3.12.1. Unmet need for a medical examination, by income quintile, 2010



Source: *Eurostat Statistics Database*, based on EU-SILC.

StatLink http://dx.doi.org/10.1787/888932704741

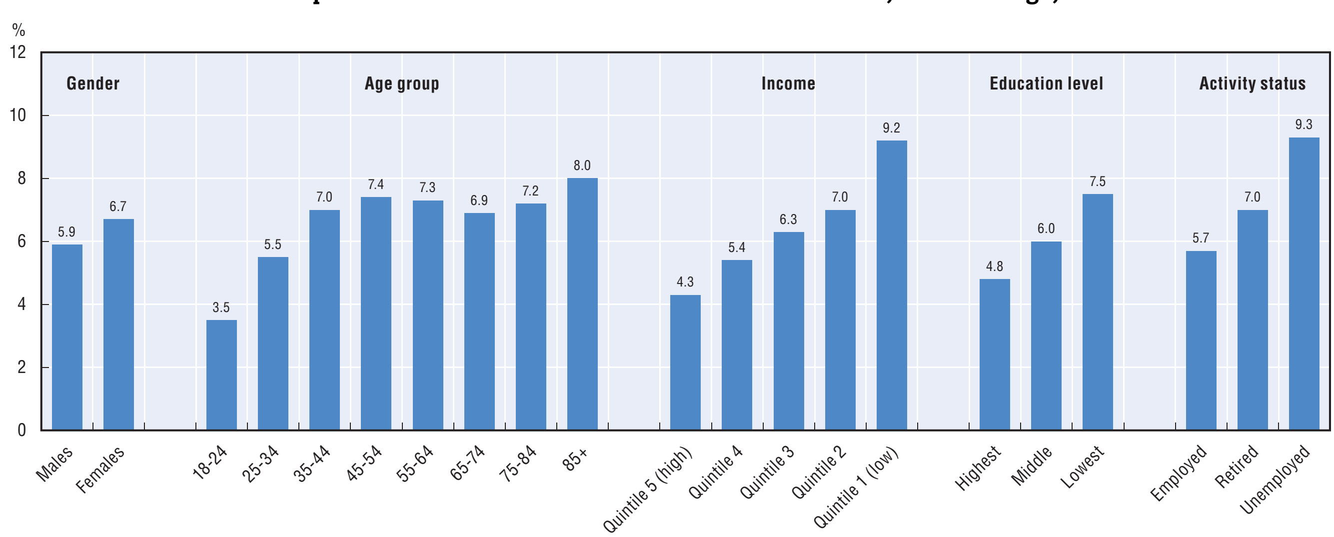
3.12.2. Unmet need for a dental examination, by income quintile, 2010



Source: *Eurostat Statistics Database*, based on EU-SILC.

StatLink http://dx.doi.org/10.1787/888932704760

3.12.3. Inequalities in unmet need for a medical examination, EU27 average, 2010



Source: *Eurostat Statistics Database*, based on EU-SILC.

StatLink http://dx.doi.org/10.1787/888932704779

Chapter 4

Quality of care

Both asthma and chronic obstructive pulmonary disease (COPD) are, to a considerable degree, either preventable or manageable through proper prevention or primary care interventions. Proper management of these chronic conditions in primary care settings can reduce exacerbation and costly hospitalisation (Menn *et al.*, 2012). Hospital admission rates serve as a proxy for primary care quality, whereby high admission rates may point to poor care co-ordination or care continuity. They may also indicate structural constraints such as an inadequate supply of family physicians (Rosano *et al.*, 2012).

Asthma is a condition that affects the airways that carry air in and out of the lungs. Asthma symptoms are usually intermittent and treatment can be highly effective, even often reversing the effects of bronchial irritation. A recent survey conducted in 70 countries showed that the global prevalence of clinically treated asthma in adults was estimated to be 4.5%. However, asthma prevalence in some European countries was amongst the highest in the world, with the Netherlands, Sweden and the United Kingdom having prevalence rates of 15% or higher (To *et al.*, 2012). COPD, on the other hand, is a progressive disease. It affects around 64 million worldwide and tobacco use is a major risk factor (WHO, 2011a). In 2008, COPD accounted for around 3% of total deaths in the European Union (WHO, 2011b). A Danish study found that COPD patients use over three times as many hospital bed-days and twice as many general practice visits as similar aged patients without COPD; overall, COPD accounted for 6% of the total annual health care costs of treating the population aged 40 and over (Bilde *et al.*, 2007).

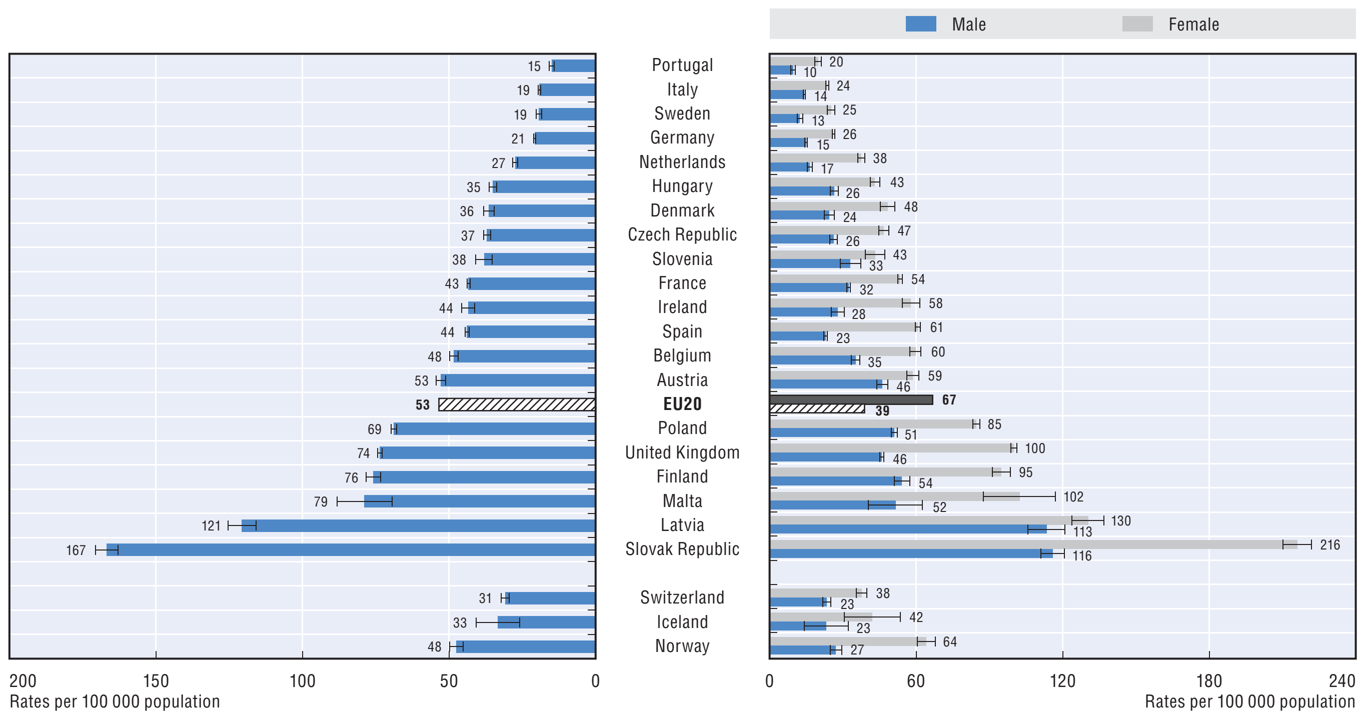
Figure 4.1.1 shows that among the EU member states, asthma accounts for an average of 53 hospital admissions per 100 000 population in 2009. Asthma-related admissions in the Slovak Republic and Latvia were more than double the EU average, whereas Portugal, Italy, Sweden and Germany report rates that are less than half the EU average. Adult females experienced higher rates for asthma admissions compared to males in all countries. On average, the female admission rate was around 70% higher than the male hospitalisation rate. This is in contrast to the results found amongst children where both asthma prevalence and hospital admissions are highest amongst boys (Lin and Lee, 2008). The reasons for gender differences in asthma-related hospital admissions are not well understood (Melero-Moreno *et al.*, 2012). The incidence of asthma among women has increased and "asthmatic women have poorer quality of life and increased utilisation of health care compared to males, despite having similar medical treatment and baseline pulmonary function" (Kynyk *et al.*, 2011).

As shown in Figure 4.1.2, the average COPD-related admission rate was 184 per 100 000 population in EU member states in 2009, nearly four times greater than for asthma. By contrast to asthma-related admissions, males had a higher COPD admission rates than females in most countries. Notable exceptions were Denmark, Iceland, Norway and Sweden where there were no statistically significant differences between males and females. Ireland and Austria have the highest admission rates for COPD. Portugal, France and Switzerland have rates that are less than half the EU average. Whilst some of the variation undoubtedly reflects differences in smoking rates, there is evidence that differences in the quality of care may also play an important role. Based on preliminary results of a 13 European countrywide evaluation, both process of care and outcomes vary considerably between and within countries. The evaluation showed that approximately 50% of COPD admissions lead to a re-admission or death within 90 days (Hartl *et al.*, 2011).

Definitions and comparability

The asthma and COPD indicators are defined as the number of hospital discharges of people aged 15 years and over per 100 000 population, adjusted to take account of the age and sex composition of each country's population structure. Differences in diagnosis and coding between asthma and COPD across countries may limit the precision of the specific disease rates. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM, may also affect the comparability of the data.

4.1.1. Asthma hospital admission rates, population aged 15 and over, 2009 (or nearest year)

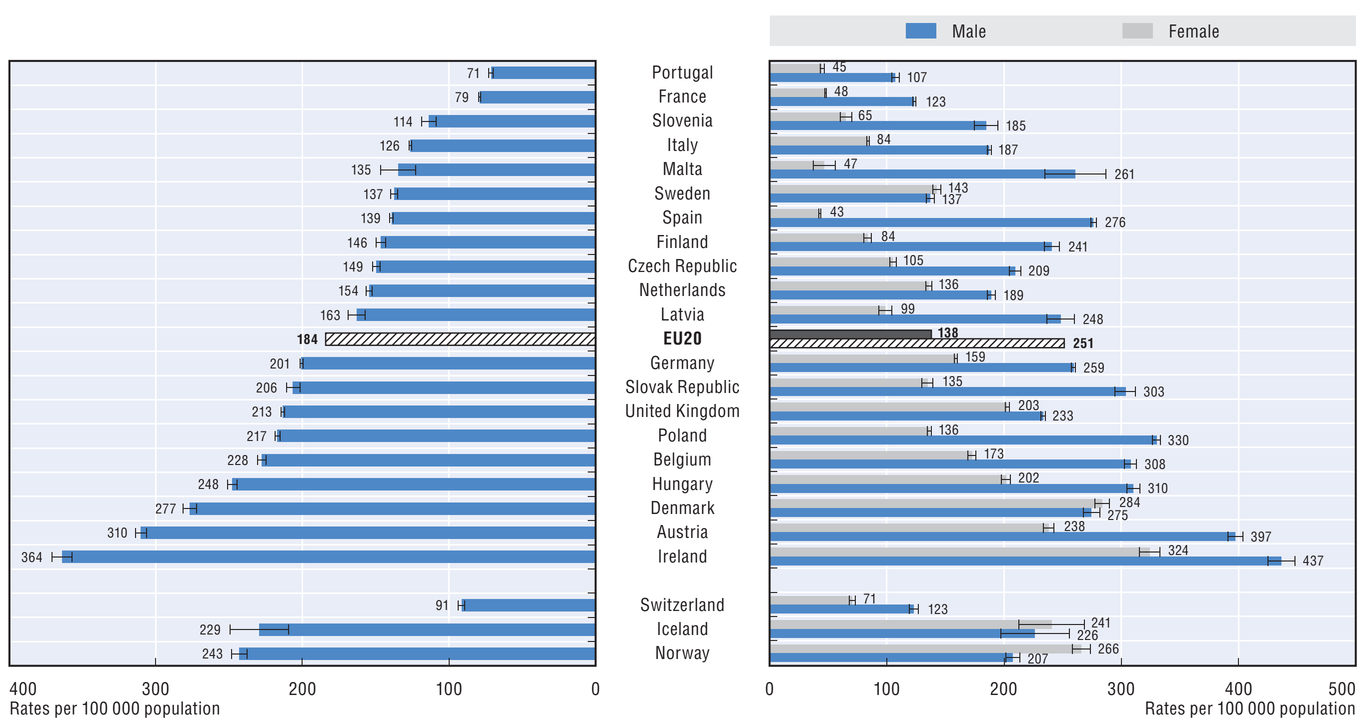


Note: Rates are age-sex standardised to the 2005 OECD standard population. 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704798

4.1.2. COPD hospital admission rates, population aged 15 and over, 2009 (or nearest year)



Note: Rates are age-sex standardised to the 2005 OECD standard population. 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704817

The health and economic burden of diabetes continues to rise. Across the European Union there are an estimated 31 million adults living with diabetes and many people remain undiagnosed (Mladovsky *et al.*, 2009). Diabetes leads to an increased risk of cardiovascular disease, blindness, kidney disease, lower limb amputation and mortality. Across Europe, the treatment and management of diabetes has been estimated to account for approximately 10% of total health care expenditure (Zhang *et al.*, 2010).

There is a considerable body of evidence on how best to prevent and treat diabetes. Modest weight loss and dietary changes can delay or even prevent the onset of diabetes by almost 60% (DPP, 2002). Better management of blood glucose levels in Type 2 diabetes patients can reduce microvascular complications by 25% (UKPDS, 1998) and non-fatal myocardial infarctions by 17% (Ray *et al.*, 2009). However, health care systems have historically struggled with optimising diabetes care and many patients do not seek treatment until complications have set in.

Figure 4.2.1 shows the extent to which the failure of effectively controlling and managing diabetes manifests in avoidable hospital admissions. The figure shows that the EU average for uncontrolled diabetes admissions (without complications) is 50 per 100 000 population. For admissions with short- and long-term diabetes complications, the EU average is 109 per 100 000 population. Males tend to have higher admission rates than females even though evidence suggests that there are no significant gender differences in diabetes prevalence (DECODE Study Group, 2003).

Figure 4.2.2 examines the relationship between diabetes prevalence and avoidable admissions. The line in the graph indicates that countries with higher disease prevalence tend to have higher rates of diabetes-related admissions. However, substantial variations remain even after controlling for disease prevalence, with countries such as Austria, the Czech Republic and Poland having higher rates of admissions, whereas Spain, Switzerland and Portugal experience lower rates. The variation in diabetes-related hospital admissions (after taking prevalence into account) suggests that other factors, such as adherence to high-quality diabetes care, may also play a role.

In combating the challenges posed by diabetes, a number of countries have introduced initiatives to reduce the impact of the disease. For example, a number of European countries have recently introduced taxes on unhealthy food and drink to promote better nutrition and reduce obesity, an important risk factor for diabetes (OECD, 2012b). Austria has introduced a disease management programme, with early indications showing some success in process quality and enhanced weight loss, but no significant improvement in diabetes control (Sönnichsen *et al.*, 2010). As part of the United Kingdom's Quality and Outcomes Framework, up to 25% of British practice income is linked to performance, including a range of diabetes indicators such as glucose control, medication compliance and foot care (Adler, 2012). In France, results from a two year pay-for-performance pilot has shown positive results in diabetes management through better medication compliance and glucose control (Polton, 2012).

Alongside national initiatives, there are also some recent examples of international diabetes collaborations. In April 2012, the European Diabetes Leadership Forum brought together a wide range of stakeholders to produce the Copenhagen Roadmap outlining initiatives to improve diabetes prevention, early detection and intervention as well as management and control (see *www.diabetesleadershipforum.eu* for more information). In the European Union, the EUBIROD Project has developed a European Diabetes Register that brings together data from across Europe. The registry allows comparisons across Europe on how diabetes is treated and share knowledge to reduce the burden of diabetes (EC, 2012b).

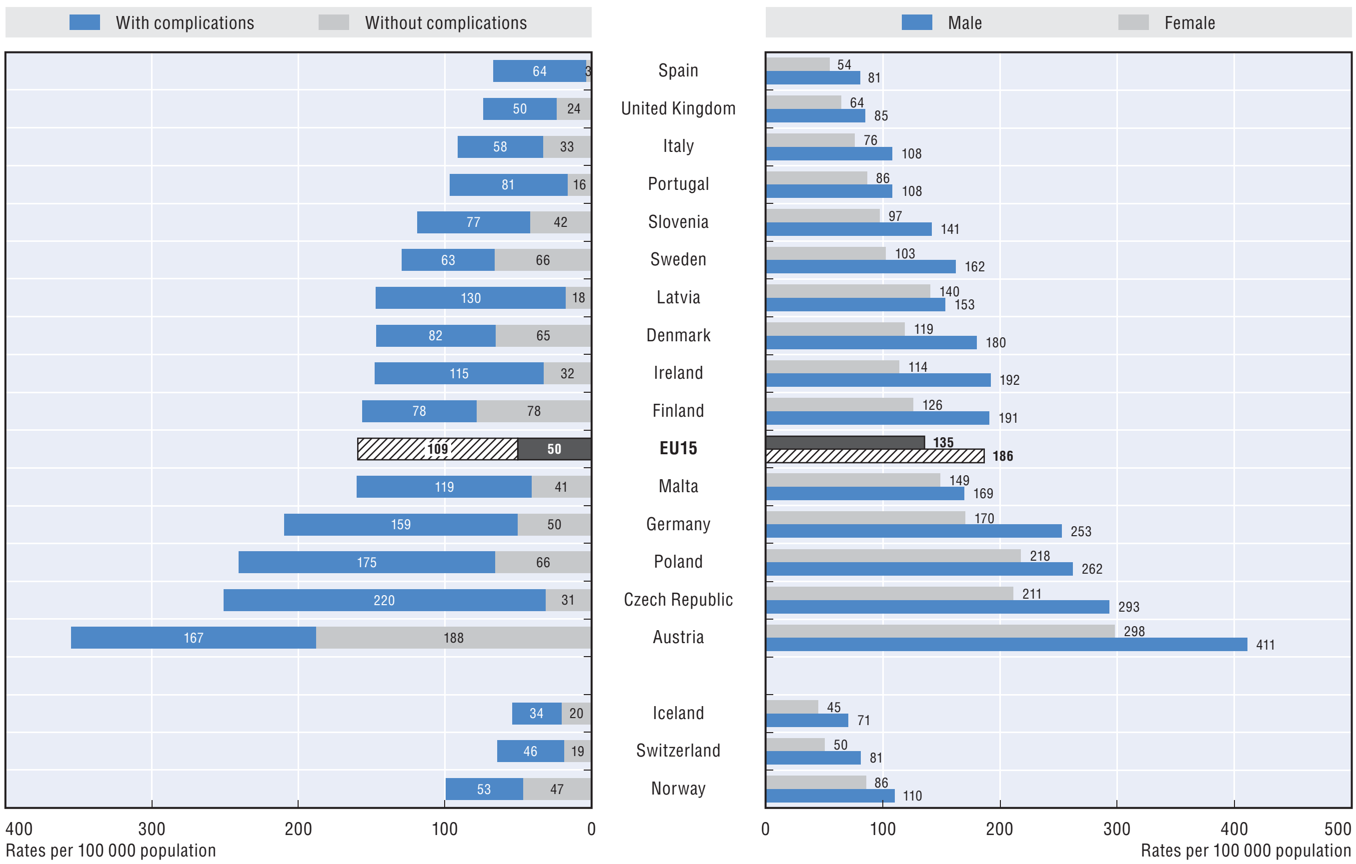
Definitions and comparability

The indicator for uncontrolled diabetes hospital admission rates with and without complications is based on the sum of the three indicators: *i)* short-term diabetes complications; *ii)* long-term diabetes complications; and *iii)* uncontrolled diabetes without complications.

The indicator for admissions with short-term diabetes complications is defined as all non-maternal/non-neonatal hospital admissions of people aged 15 years and over with a principal diagnosis code for diabetes short-term complications including coma and ketoacidosis, caused by a shortage of insulin in the body. The indicator for long-term diabetes complications is defined similarly but where the principal diagnosis code indicates the presence of long-term diabetes complications such as renal, eye or circulatory complications. The indicator for uncontrolled diabetes without complications is defined as all non-maternal/non-neonatal hospital admissions of people aged 15 years and over with a principal diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication.

The rates are per 100 000 population and have been adjusted to take account of the age and sex composition of each country's population structure. Differences in coding practices among countries may affect the comparability of data. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM, may also affect the comparability of the data.

4.2.1. Uncontrolled diabetes hospital admission rates with and without complications, population aged 15 and over, 2009 (or nearest year)

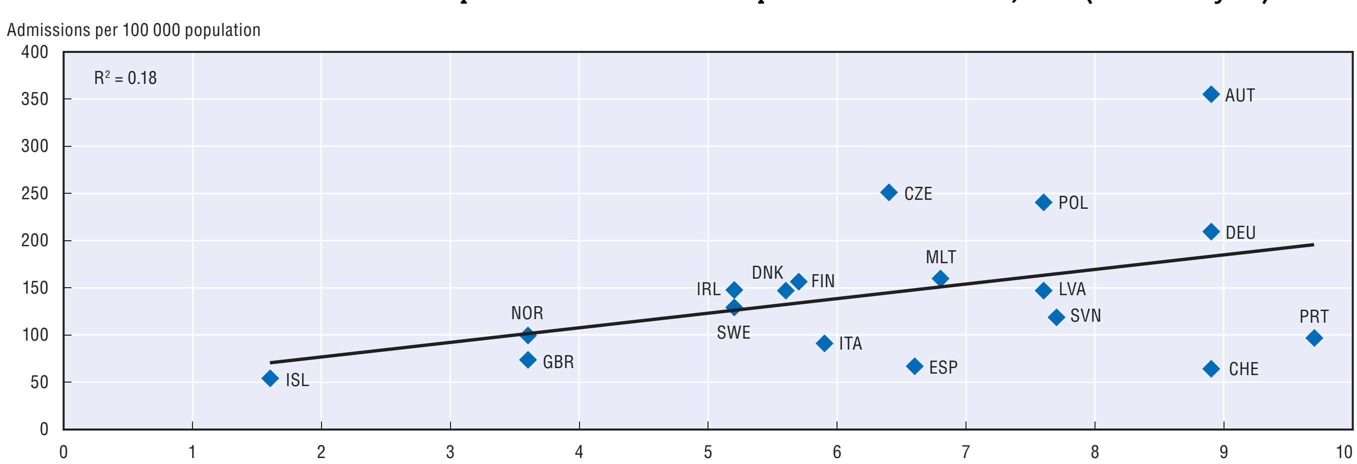


Note: Rates are age-sex standardised to the 2005 OECD standard population. Male and female rates refer to the sum of admissions with and without diabetes complications.

Source: *OECD Health Data 2012*.

StatLink http://dx.doi.org/10.1787/888932704836

4.2.2. Uncontrolled diabetes hospital admission rates and prevalence of diabetes, 2009 (or nearest year)



Note: Prevalence estimates of diabetes refer to adults aged 20-79 years and data are age-standardised to the World Standard Population. Hospital admission rates refer to the population aged 15 and over and are age-sex standardised to the 2005 OECD standard population.

Source: IDF (2009) for prevalence estimates; *OECD Health Data 2012* for hospital admission rates.

StatLink http://dx.doi.org/10.1787/888932704855

Care for AMI (heart attack) has changed dramatically in recent decades (Khush *et al.*, 2005; Gil *et al.*, 1999). Clinical practice guidelines, such as those developed by the European Society of Cardiology, provide clinicians with the best available evidence on how to optimise care. Numerous studies have shown that greater compliance with guidelines improves health outcomes (*e.g.* Schiele *et al.*, 2005; Eagle *et al.*, 2005). However, a considerable proportion of AMI patients do not receive recommended care (Brekke and Gjelsvik, 2009; Kotseva *et al.*, 2009).

AMI case-fatality rates refer to the percentage of patients who die within 30 days after a hospital admission for AMI. This rate is a good measure of acute care quality because there is a clear link between the processes of care and health outcomes (Bradley *et al.*, 2006). AMI case-fatality rates have been used for hospital benchmarking in several countries including Denmark and the United Kingdom, and have been used in the academic literature as a wider marker for hospital quality (*e.g.* Kessler and Geppert, 2005; Cooper *et al.*, 2011). However, the indicator is influenced by not only the quality of care provided in hospitals but also differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI.

Figure 4.3.1 shows the crude and age-standardised AMI case-fatality rates, when the death occurs within a 30-day period and in the same hospital as the initial AMI admission. The average age-standardised AMI case-fatality rate across the European Union is 5% but rates vary widely between countries. The lowest age-standardised rates are found in Denmark and Norway (2.3% and 2.5%, respectively) and the highest rate is in Belgium (8.6%), although some of the variation between countries may be explained by differences in data definitions (see box on "Definitions and comparability"). The Minister of Health in Belgium introduced new reforms in 2012 that aim to minimise response time for cardiac interventions, improve co-operation within provider networks, set new care standards, as well as new minimum activity thresholds in hospitals which are aimed at reducing AMI case-fatality rates (Onkelinx, 2012).

Patient-based data, which follow patients in and out of hospitals and across hospitals, is a more robust indicator for international comparison than admission-based data, as admission-based data may bias case-fatality rates downwards if unstable cardiac patients are commonly transferred to tertiary care centres. Unfortunately, patient-based data is only available for a relatively small group of countries. Figure 4.3.2 presents AMI case-fatality rates for the nine countries for which both admission-based and patient-based data are available. It confirms that patient-based indicators are higher than hospital-based rates, but the degree of cross-country variation is considerably less compared to the admission-based indicator. The average patient-based AMI case-fatality rate is 6.9% and ranges from 5.5% (Sweden) to 7.8% (Slovenia).

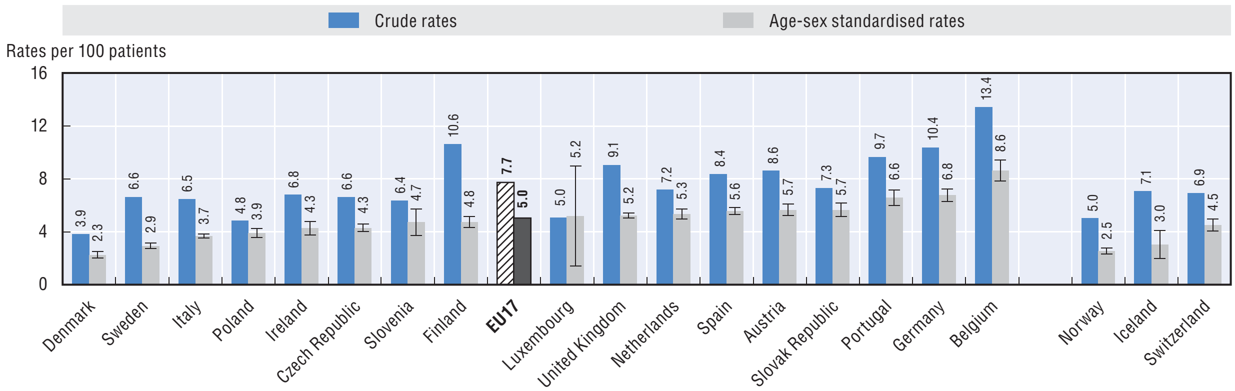
Case-fatality rates for AMI have decreased over time, with almost all countries recording sizeable reductions between 2000 and 2009 (Figure 4.3.3). The AMI case-fatality rate for the ten EU member states reporting data over this period fell by nearly 50% between 2000 and 2009. These substantial improvements reflect better and more reliable processes of care, in particular with respect to rapid re-opening of the occluded arteries. Most of these improvements were made between 2000 and 2005, with fewer gains in more recent years.

Definitions and comparability

In-hospital case-fatality rate following AMI is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital with an AMI. Ideally, rates would be based on individual patients; however, not all countries have the ability to track patients in and out of hospitals, across hospitals or even within the same hospital because they do not currently use a unique patient identifier. In order to increase country coverage, this indicator is also presented based on individual hospital admissions and restricted to mortality within the same hospital, so differences in practices in discharging and transferring patients may influence the findings. In counting the number of AMI admissions, Belgium excludes transfers to other hospitals from the denominator leading to some over-estimation.

Both crude and age-sex standardised rates are presented for admission-based data. Standardised rates adjust for differences in age (45+ years) and sex and facilitate more meaningful international comparisons. Crude rates are likely to be more meaningful for internal consideration by individual countries.

4.3.1. Admission-based in-hospital case-fatality rates within 30 days after admission for AMI, 2009 (or nearest year)

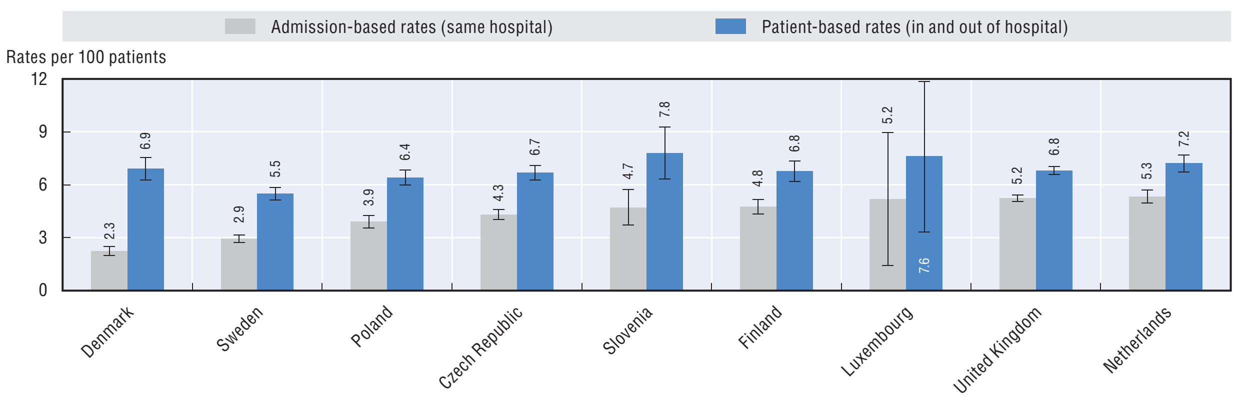


Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704874

4.3.2. Comparing admission-based and patient-based in-hospital case-fatality rates within 30 days after admission for AMI, selected EU countries, 2009 (or nearest year)

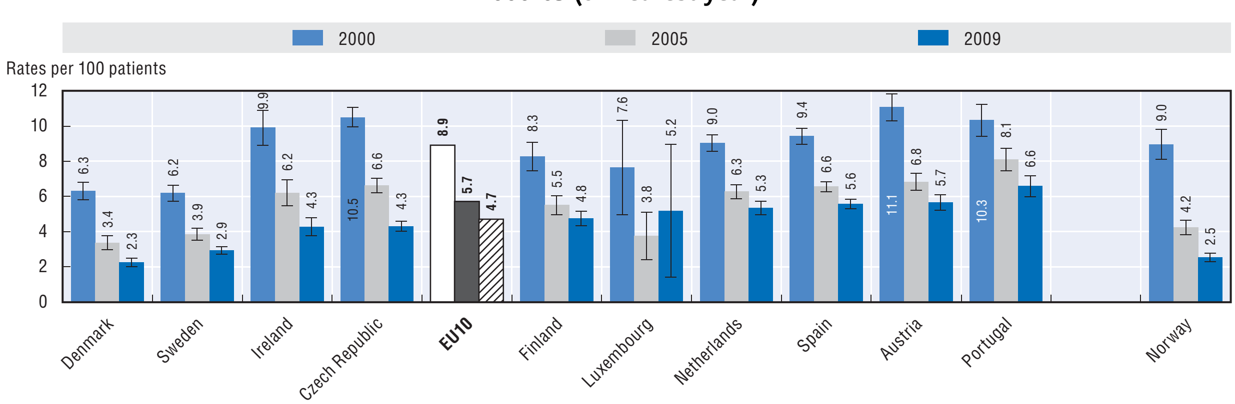


Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704893

4.3.3. Reduction in in-hospital case-fatality rates within 30 days after admission for AMI, 2000-09 (or nearest year)



Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704912

In Europe, stroke and other cerebrovascular diseases account for around 9% of all deaths and are the third most common cause of death (OECD, 2012a, based on the *WHO Mortality Database*). Stroke is also a major cause of adult disability. Around one third of all stroke incidents lead to permanent sequelae and dependency (WHO, 2004b). In ischemic stroke, representing about 85% of cases, the blood supply to a part of the brain is interrupted, leading to a necrosis of the affected part, while in hemorrhagic stroke, the rupture of a blood vessel causes bleeding into the brain, usually causing more widespread damage.

Treatment for ischemic stroke has advanced dramatically over the last decades. Since the 1990s, clinical trials have demonstrated clear benefits of thrombolytic treatment for ischemic stroke in both European (*e.g.* Hacke *et al.*, 1995) and non-European countries (*e.g.* Mori *et al.*, 1992; NINDS, 1995). Dedicated stroke units were introduced in many countries, to facilitate timely and aggressive diagnosis and therapy for ischemic and haemorrhagic stroke victims, achieving better survival than usual care (Seenan *et al.*, 2007). Whilst there is only limited international data on stroke unit access, there are some indications that access varies across and within countries (OECD, 2003; Abilleira *et al.*, 2012; Rudd *et al.*, 2007).

Stroke survival reflects quality of acute care, particularly effective treatment methods such as thrombolysis and prompt and adequate care delivery (Abilleira *et al.*, 2012). Consequently, stroke case-fatality rates have been used for hospital benchmarking within and between OECD countries.

While the standardised case-fatality rate for ischemic stroke was about 5.4% on average across EU member states in 2009, there were large differences between the highest rate in Slovenia (9.7%) and the lowest rate in Denmark (2.6%) (Figure 4.4.1). The average standardised rate for hemorrhagic stroke is 20.2% (Figure 4.4.2), about four times greater than the rate for ischemic stroke, reflecting the more severe effects of intracranial bleeding. There is a six-fold cross-country difference between the highest and lowest percentage of in-hospital case-fatality for hemorrhagic stroke. In Finland, 6.5% of hemorrhagic stroke admissions lead to a death within 30 days, whereas in Belgium the corresponding figure is 38.6%. One potential reason for this is that patients are not systematically transported to hospitals with dedicated stroke units in Belgium so that some patients miss out on optimal care. The variation between countries may also, in part, be explained by differences in data definitions (see box on "Definitions and comparability").

There is a high degree of correlation between the two case-fatality indicators for ischemic and hemorrhagic stroke, with countries that achieve better survival for one type of stroke tending to do well for the other type. This suggests that system-based factors such as access to specialised stroke care, average length of stay, emergency retrieval times as well as stroke severity may also influence the case-fatality rates.

Between 2000 and 2009, case-fatality rates for ischemic stroke declined by over 20% across EU member states (Figure 4.4.3). These reductions suggest overall improvements in the quality of care for stroke patients, with gains made in most countries for which data is available. However, improvements were not uniform across countries. Improvements in Ireland and Portugal were below the EU average, while the rate in Luxembourg did not change significantly over the period. On the other hand, Norway was able to reduce its fatality rate by 55% between 2000 and 2009. The improvements in case-fatality rates can at least be partially attributed to the high level of access to dedicated stroke units in countries such as Norway, Denmark and Sweden (Indredavik, 2009).

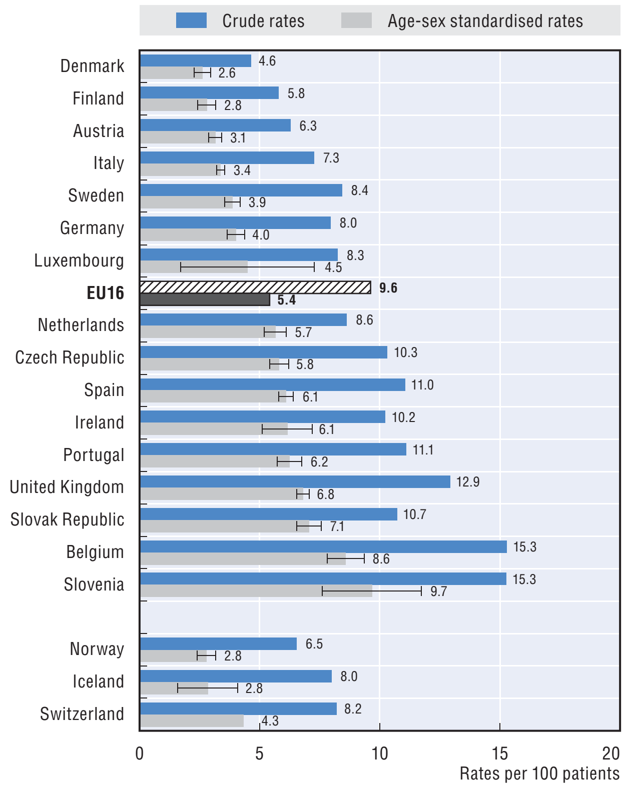
Definitions and comparability

In-hospital case-fatality rate following ischemic and hemorrhagic stroke is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital. Ideally, rates would be based on individual patients; however, not all countries have the ability to track patients in and out of hospitals, across hospitals or even within the same hospital because they do not currently use a unique patient identifier. Therefore, this indicator is based on unique hospital admissions and restricted to mortality within the same hospital, so differences in practices in discharging and transferring patients may influence the findings. In counting the number of stroke admissions, Belgium excludes transfers to other hospitals from the denominator leading to some over-estimation.

The Czech Republic, Denmark, Finland, Luxembourg, the Netherlands, Poland, Slovenia, Sweden and the United Kingdom also provided patient-based (in and out of hospitals) data. Their relative performance is generally similar as the case-fatality rate within the same hospital, although the rates are obviously higher.

Both crude and age and sex standardised rates are presented. Standardised rates adjust for differences in age (45+ years) and sex and facilitate more meaningful international comparisons. Crude rates are likely to be more meaningful for internal consideration by individual countries.

4.4.1. In-hospital case-fatality rates within 30 days after admission for ischemic stroke, 2009 (or nearest year)

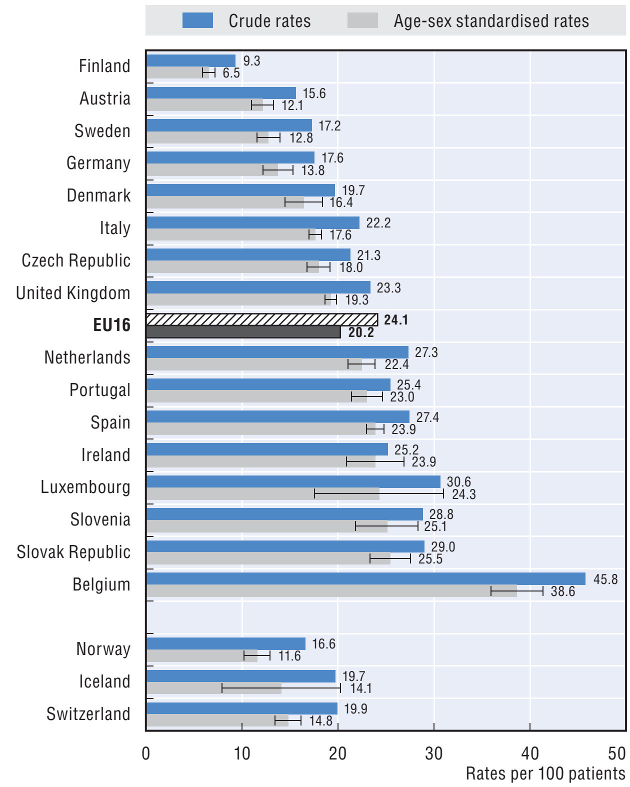


Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704931

4.4.2. In-hospital case-fatality rates within 30 days after admission for hemorrhagic stroke, 2009 (or nearest year)

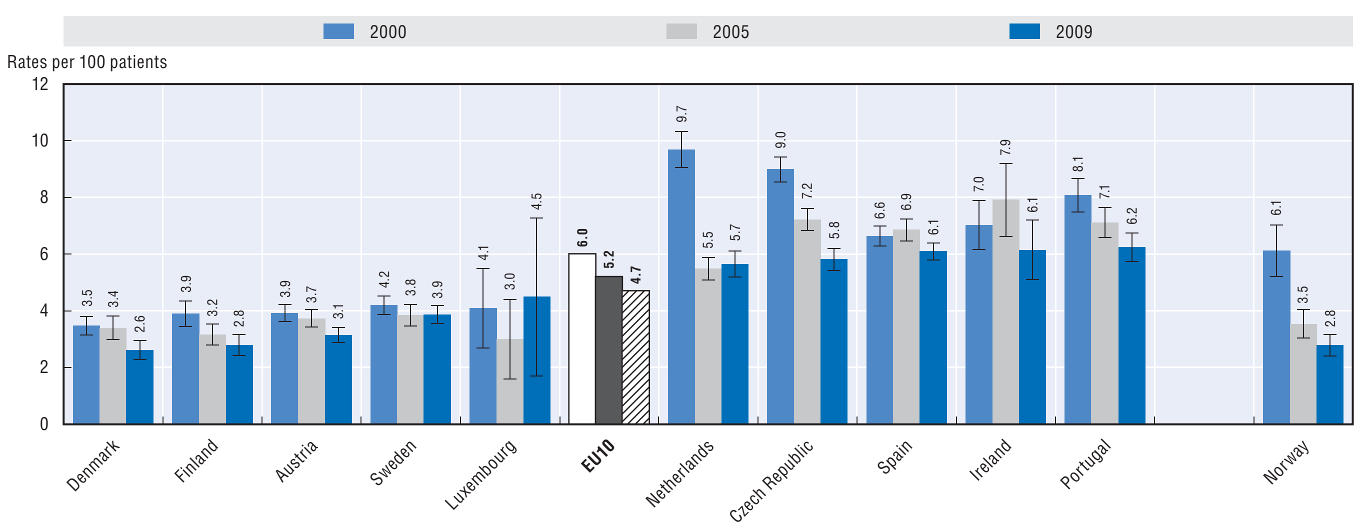


Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704950

4.4.3. Reduction in in-hospital case-fatality rates within 30 days after admission for ischemic stroke, 2000-09 (or nearest year)



Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704969

Several European studies have documented that between 8% and 12% of patients admitted to hospitals suffer from adverse effects whilst receiving health care (UK Department of Health, 2000; WHO Europe, 2012b). The European Commission estimates that without any policy changes, there are likely to be 10 million adverse events related to hospitalisations (including infection-related ones) in the European Union per year, of which almost 4.4 million would be preventable (EC, 2008d).

Patient safety has, in recent years, become an important part of the policy agenda in Europe. In 2009, the Council of the European Union adopted a recommendation on patient safety, including the prevention and control of health care associated infections (European Union, 2009). This recommendation is intended to bring about a political commitment from all EU member states to address the patient safety challenge.

Figures 4.5.1 to 4.5.4 show reported complication rates related to surgical and medical care for four patient safety indicators: *i)* sentinel events, such as a foreign body left in a person during a surgical procedure, are those that in theory and practice should never happen and thus whose occurrence indicates failure of safeguards to protect patients during care delivery; *ii)* accidental puncture or laceration during a surgical procedure is a recognised risk, but increased rates of such complications may indicate system problems; *iii)* postoperative pulmonary embolism and deep vein thrombosis cause unnecessary pain and death, but can be prevented through the appropriate use of anticoagulants and other preventive measures; and *iv)* sepsis after elective surgery is a severe complication that can lead to multiple organ dysfunction and death. Many cases of postoperative sepsis can be prevented through infection prevention measures such as hand hygiene, sterile surgical techniques, good postoperative care and, where necessary, the appropriate use of prophylactic antibiotics.

Comparable data are available for between eight and thirteen European countries, depending on the indicator. There are considerable differences across countries for these four patient safety indicators. Whereas Denmark and Germany report complication rates that are below the EU average for each of the four patient safety indicators, other countries show less consistent results. For example, Belgium, France, Ireland and Switzerland perform well on some indicators but report worse than EU average results for others.

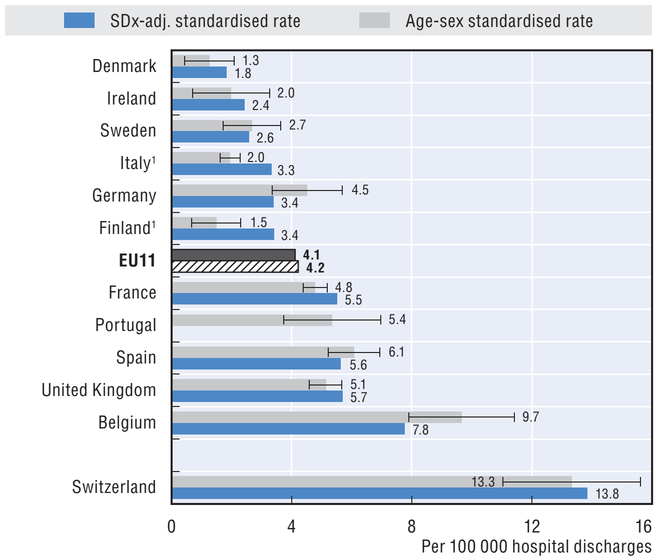
Differences in the prevalence of patient safety complications across countries may reflect – at least in part – differences in the willingness of health workers to admit to medical errors as well as differences in the sensitivity of monitoring or surveillance systems across countries. Nevertheless, these indicators do show that numerous patients have been affected by patient safety events. International efforts to harmonise documentation and data systems, and the results of ongoing validation studies, will provide more information on the validity and reliability of patient safety measures based on administrative hospital data in the future.

Definitions and comparability

Patient safety indicators are derived from the Quality Indicators developed by the US Agency for Healthcare Research and Quality (AHRQ). AHRQ's patient safety indicators are a set of indicators that provide information on hospital complications and adverse events following surgeries, procedures, and childbirth. The indicators were developed after a comprehensive literature review, analysis of ICD-9-CM codes, clinician panel review, implementation of risk adjustment, and empirical analyses (AHRQ, 2006).

All procedural or postoperative complications are defined as the number of discharges with ICD codes for complication in any secondary diagnosis field, divided by the total number of discharges (medical and surgical or surgical only) for patients aged 15 and older. Data are based on administrative hospital discharge data. The rates have been age/sex standardised, apart from postoperative sepsis rate (this is due to the use of modified exclusion criteria within the algorithm for the calculation of this indicator).The patient safety rates have also been adjusted by the average number of secondary diagnoses (SDx) (Drösler *et al.*, 2011) in order to improve cross-country comparability. Despite this adjustment, the results for the two countries (Finland and Italy) that are reporting less than 1.5 diagnoses per record may be underestimated. Differences in coding practice, coding rules (*e.g.* definition of principal and secondary diagnoses), coding for billing purposes and the use of diagnosis type markers (*e.g.* "present at admission") may also influence indicators.

4.5.1. Foreign body left in during procedure, 2009 (or nearest year)

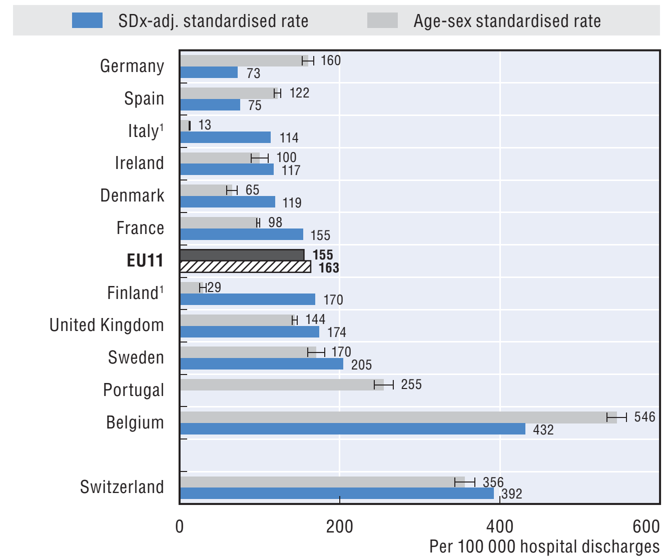


Note: Some of the variations across countries are due to different classification systems and recording practices. 95% confidence intervals represented by ⊢⊣.
SDx: Secondary diagnoses adjustment.
1. The average number of secondary diagnoses is < 1.5.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932704988

4.5.2. Accidental puncture or laceration, 2009 (or nearest year)

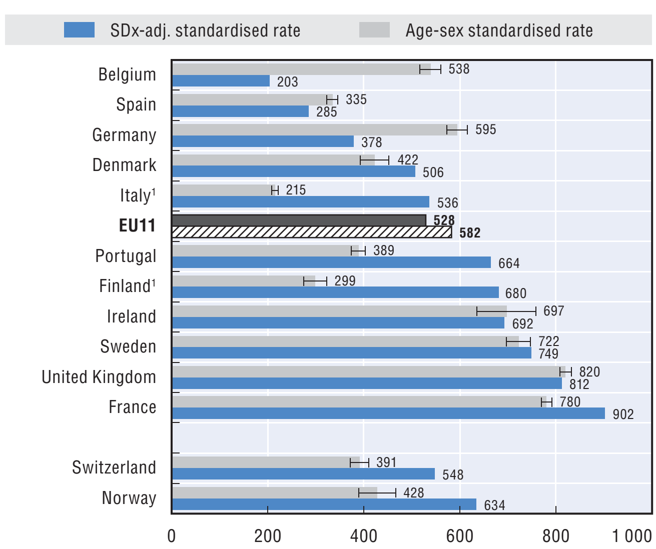


Note: Some of the variations across countries are due to different classification systems and recording practices. 95% confidence intervals represented by ⊢⊣.
SDx: Secondary diagnoses adjustment.
1. The average number of secondary diagnoses is < 1.5.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705007

4.5.3. Postoperative pulmonary embolism or deep vein thrombosis, 2009 (or nearest year)

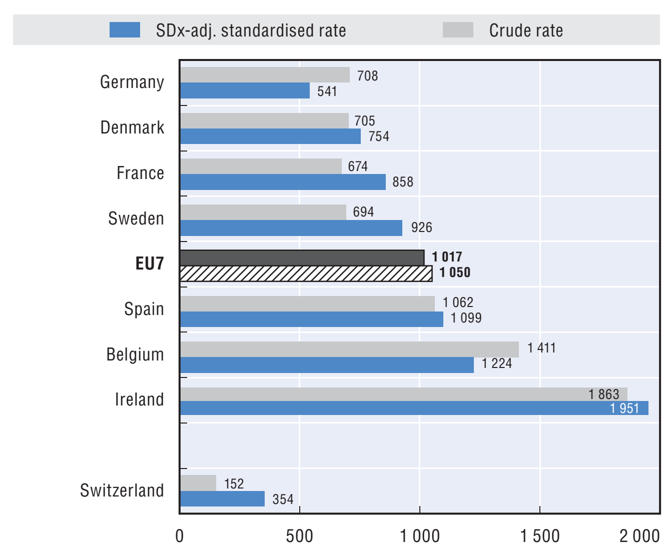


Note: Some of the variations across countries are due to different classification systems and recording practices. 95% confidence intervals represented by ⊢⊣.
SDx: Secondary diagnoses adjustment.
1. The average number of secondary diagnoses is < 1.5.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705026

4.5.4. Postoperative sepsis, 2009 (or nearest year)



Note: Some of the variations across countries are due to different classification systems and recording practices.
SDx: Secondary diagnoses adjustment.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705045

The patient safety indicators related to obstetric trauma flag cases of potentially preventable third- and fourth-degree perineal tears during vaginal delivery. Such tears extending to the perineal muscles, anal sphincter and bowel wall require surgical treatment after birth. Possible complications include continued perineal pain and anal incontinence. A recent study found that around 10% of women who had such tears will suffer from faecal incontinence initially (compared to 3% of women who do not have a tear). Almost 45% of women with initial symptoms had remaining problems after four to eight years (Sundquist, 2012).

The proportion of deliveries involving higher degree lacerations is a useful indicator of the quality of obstetrical care. These types of tears are not possible to prevent in all cases, but can be reduced by employing appropriate labour management and care standards. A third- or fourth-degree trauma is more likely to occur in the case of first vaginal delivery, baby's high birth weight, labour induction, occiput posterior position, prolonged second stage of labour and instrumental delivery. Obstetric trauma indicators have been used by the US Joint Commission as well as by different international quality initiatives analysing obstetric data (AHRQ, 2007). As the risk of a perineal laceration is significantly increased in instrument-assisted labour (vacuum, forceps), rates for this patient population are reported separately.

Figures 4.6.1 and 4.6.2 show the variation in reported rates of obstetric trauma during vaginal delivery with and without instrument. The rate of obstetric trauma after vaginal delivery with instrument shows high variability among countries. Reported rates vary from below 3% (Slovenia, Portugal, France, Belgium, and Italy) to more than 10% (Sweden). Rates of obstetric trauma after vaginal delivery without instrument range from 0.2% to 3.2%. Denmark, Sweden and Switzerland stand out as having the highest reported rates for obstetric trauma without instrument. The lower rate of obstetric trauma in Finland compared to other Nordic countries (Denmark, Norway, and Sweden) may be explained by the variation in delivery method and episiotomy practice (Laine *et al.*, 2009). Furthermore, findings from a recent study showed that enhanced midwifery skills in managing vaginal delivery reduce the risk of obstetric anal sphincter injuries (Hals *et al.*, 2010).

There is a strong relationship between the two obstetric trauma indicators shown in Figures 4.6.1 and 4.6.2. Countries such as Belgium, Finland, France, Italy, Portugal, Slovenia and Spain report lower than EU average obstetric trauma rates for both indicators. Latvia, on the other hand, has high rates of trauma when an instrument was used but low rates when an instrument was not used during delivery. This makes it more difficult to draw any clear conclusions from these two indicators for Latvia.

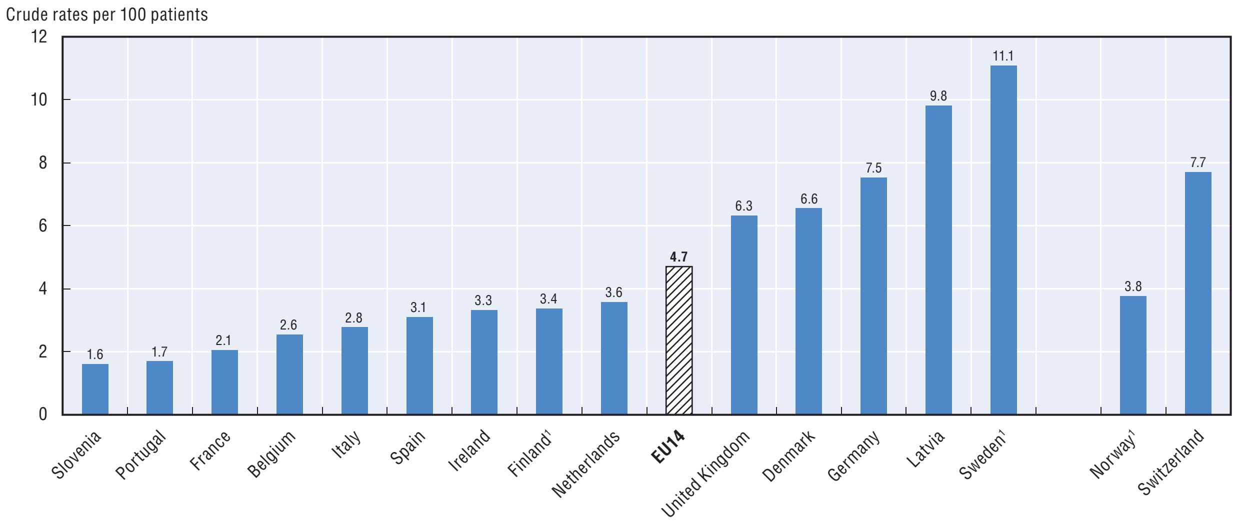
Definitions and comparability

The two obstetric trauma indicators are defined as the proportion of instrument assisted/non-assisted vaginal deliveries with third- and fourth-degree obstetric trauma codes in any diagnosis and procedure field. Therefore, any differences in the definition of principal and secondary diagnoses have no influence on the calculated rates.

Several differences in data reporting across countries may influence the calculated rates of obstetric patient safety indicators. These relate primarily to differences in coding practice and data sources. Some countries report the obstetric trauma rates based on administrative hospital data and others based on obstetric register. There is some evidence that registries produce higher quality data and report a greater number of obstetric trauma events compared to administrative datasets (Baghestan *et al.*, 2007).

See box on "Definitions and comparability" for Indicator 4.5 "Procedural or postoperative complications", for more information on patient safety indicators.

4.6.1. Obstetric trauma, vaginal delivery with instrument, 2009 (or nearest year)

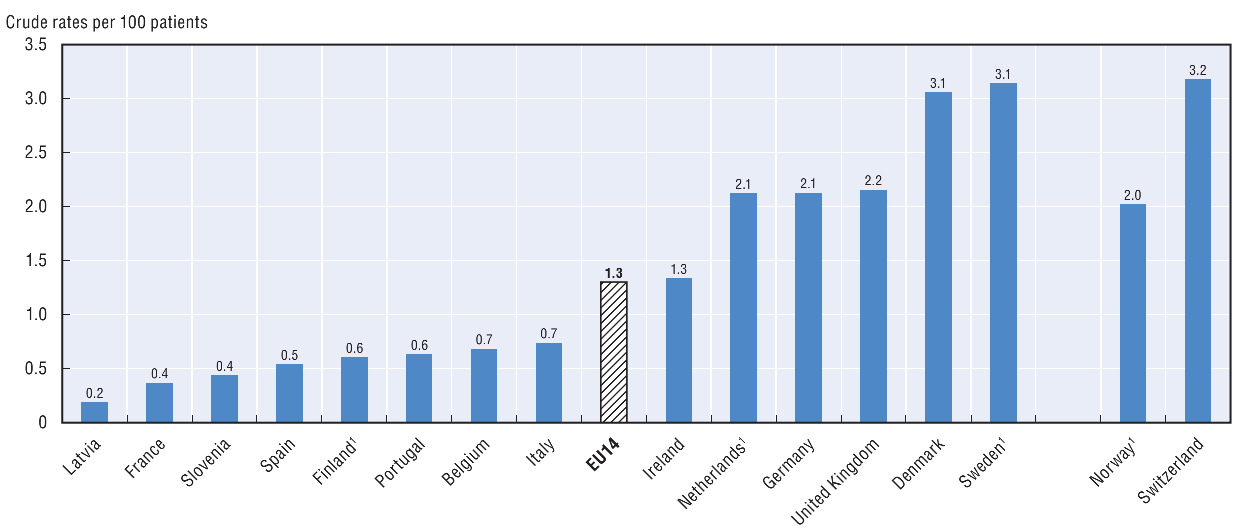


1. Obstetric register data.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705064

4.6.2. Obstetric trauma, vaginal delivery without instrument, 2009 (or nearest year)



1. Obstetric register data.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705083

Cervical cancer is mainly the outcome of persistent infection with human papillomavirus (HPV), which accounts for approximately 95% of all cases (IARC, 1995; Franco *et al.*, 1999). Every year 61 000 new cervical cancers are diagnosed in Europe (IARC, 2011).

Precancerous changes can be detected and treated before progression to cancer occurs, making cervical cancer highly preventable. Population-based cervical screening programmes have been promoted by the Council of the European Union and the European Commission (European Union, 2003; EC, 2008c), but the periodicity and target groups vary among member states.

Figure 4.7.1 shows cervical screening rates across European countries in the years 2000 and 2010 for women aged 20-69 years. In 2010, Latvia, Germany, the United Kingdom, and Norway reported coverage close to 80% of the target population. Whilst overall screening rates across the European Union improved slightly over the past decade, several countries, including Finland, Hungary, Iceland, Norway, the Slovak Republic and the United Kingdom witnessed a decline in screening rates between 2000 and 2010.

Survival rates reflect both how early the cancer was detected and the effectiveness of the treatment. It is a key measure of the effectiveness of health care systems to treat potentially fatal diseases and track progress over time. Figure 4.7.2 shows a small gain in five-year cervical cancer survival rates in the European Union between 1997-2002 and 2004-09, although gains were not uniform across countries. Of the 11 EU member states reporting data in both periods, seven recorded modest gains in survival rates whereas four countries (Denmark, Finland, France and Germany) reported a small decline, although the reduction was not statistically significant. Norway reported the highest rates as well as the highest gain in cervical cancer survival, with 78.2% of patients surviving five years after diagnosis.

Mortality rates reflect the effect of cancer care in past years, the impact of screening, improved diagnosis of early-stage cancers as well as incidence. Mortality rates for cervical cancer declined in most European countries between 2000 and 2010, apart from Bulgaria, the Former Yugoslav Republic of Macedonia and Croatia, Greece and Ireland (Figure 4.7.3). For some countries such as Lithuania and Romania, mortality rates remain well above the EU average.

Since the development of a vaccine against some HPV types, vaccination programmes have been implemented in most EU countries. By May 2012, 17 out of 27 EU member states had implemented routine HPV vaccination programmes. In most cases the vaccination programmes are financed by the national health systems. However, in Austria the vaccination is entirely covered by the recipient, and in Belgium and France recipients contribute 25% and 35% of the payment, respectively (ECDC, 2012b). Since its introduction, there has been an active policy and research debate about the impact of the vaccine on cervical cancer screening strategies (Goldhaber-Fiebert *et al.*, 2008; Wheeler *et al.*, 2009).

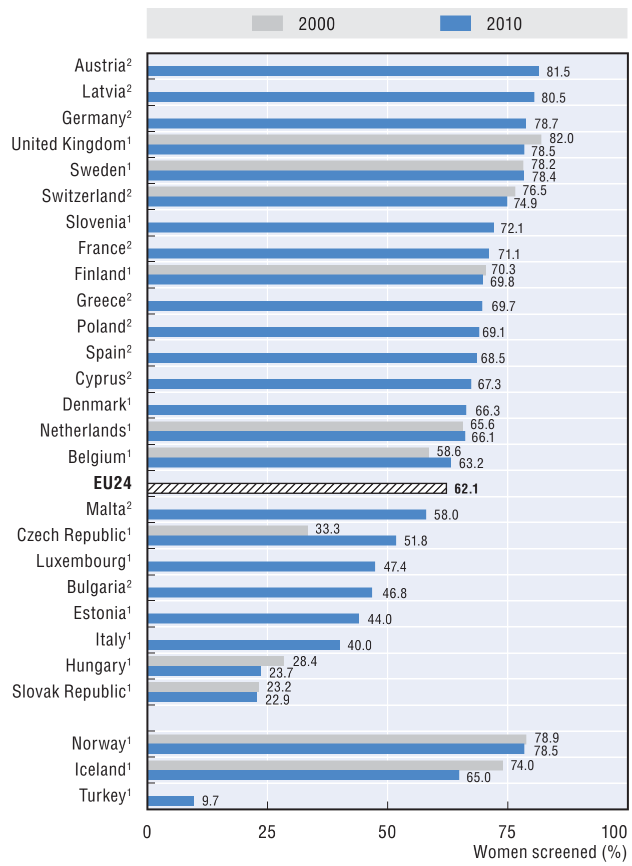
Definitions and comparability

Screening rates for cervical cancer reflect the proportion of women who are eligible for a screening test and actually receive the test. As policies regarding screening periodicity and target population differ across countries, the rates are based on each country's specific policy. Some countries ascertain screening based on surveys and others based on encounter data, which may influence the results. Survey-based results may be affected by recall bias. If a country has an organised programme, but women receive a screening outside the programme, rates may also be under-reported. Survey data are reported only when programme data are not available.

Relative cancer survival rates reflect the proportion of patients with a certain type of cancer who are still alive after a specified time period (commonly five years) compared to those still alive in absence of the disease. Relative survival rates capture the excess mortality that can be attributed to the diagnosis. For example, a relative survival rate of 80% does not mean that 80% of the cancer patients are still alive after five years, but that 80% of the patients that were expected to be alive after five years, given their age at diagnosis and sex, are in fact still alive. All the survival rates presented here have been age-standardised using the International Cancer Survival Standard (ICSS) population. The survival rates are not adjusted for tumour stage at diagnosis, hampering assessment of the relative impact of early detection and better treatment.

See Indicator 1.5 "Mortality from cancer" for definition, source and methodology underlying the cancer mortality rates.

4.7.1. Cervical screening, percentage women screened aged 20-69, 2000 to 2010 (or nearest year)

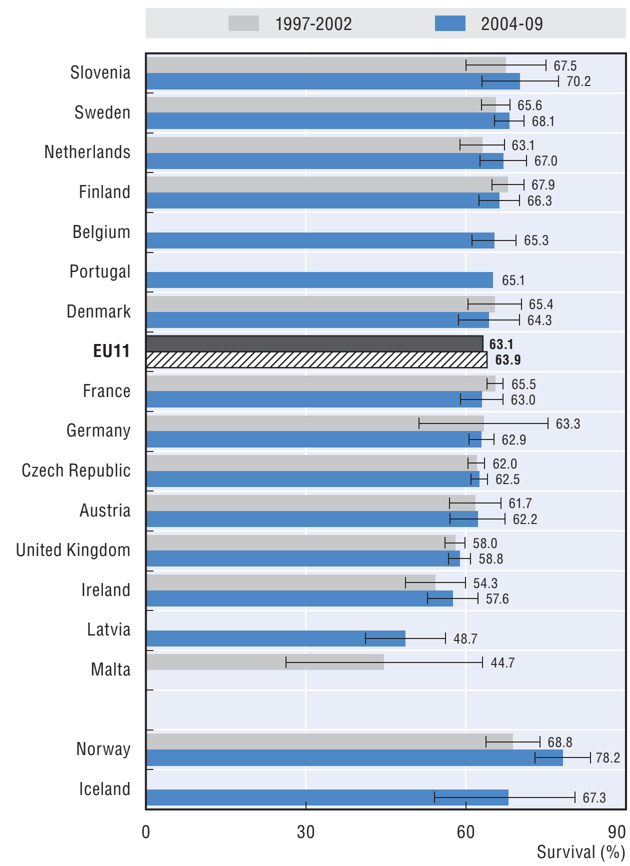


1. Programme. 2. Survey.

Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932705102

4.7.2. Cervical cancer five-year relative survival rate, 1997-2002 and 2004-09 (or nearest period)

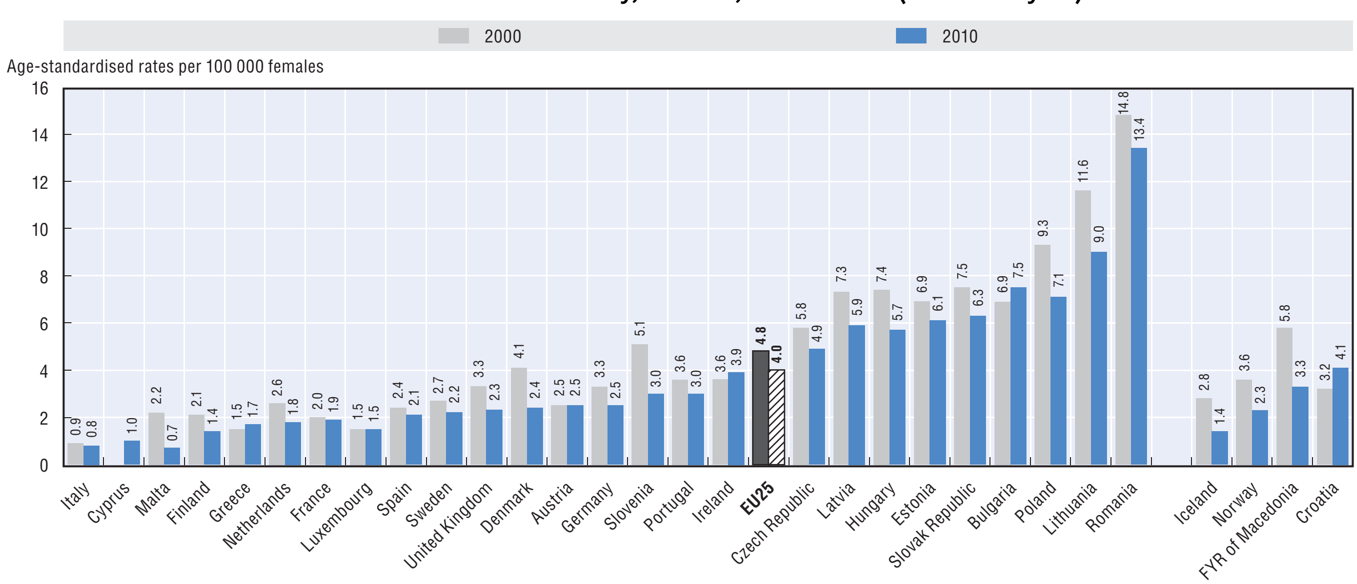


Note: 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932705121

4.7.3. Cervical cancer mortality, females, 2000 to 2010 (or nearest year)



Source: Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932705140

Breast cancer is the most prevalent form of cancer among women, with 425 000 new cases diagnosed each year in Europe (IARC, 2011). Risk factors that increase a person's chance of getting this disease include, but are not limited to, age, family history of breast cancer, oestrogen replacement therapy and alcohol. Annual incidence in Europe is expected to rise to 466 000 cases by 2020. Variation in breast cancer care across European countries is indicated by mammography screening rates in women aged 50-69 years, relative survival rates, and mortality rates.

EU guidelines (EC, 2006) promote a desirable target screening rate of at least 75% of eligible women in European member states but in 2010 only three countries had reached this target. There is considerable uniformity amongst national breast screening programmes, in terms of the target age group and recommended time interval between screens. Participation, however, continues to vary considerably across European countries, ranging from 8% in Romania, 15% in Turkey and 16% in the Slovak Republic, to over 80% in Finland, Slovenia and the Netherlands (Figure 4.8.1). This variation may, in part, be explained by programme longevity, with some countries having well established programmes and others commencing programmes more recently (von Karsa *et al.*, 2008). However, screening rates fell in a number of countries in the past decade including Norway and the United Kingdom. Rates in Hungary and the Slovak Republic have increased substantially, although they remain well below the EU average.

Breast cancer survival rates reflect advances in public health interventions, such as greater awareness of the disease, screening programmes, and improved treatment. In particular, the introduction of combined breast conserving surgery with local radiation and advances in adjuvant and neoadjuvant therapy has increased survival as well as the quality of life of survivors (Mauri *et al.*, 2008). Figure 4.8.2 shows that the average EU relative five-year breast cancer survival rate around the period 2004-09 was 82%. Between 1997-2002 and 2004-09, survival rates have improved in all countries. Survival rates around 2004-09 were highest in France, Finland, Belgium, Sweden, Norway and Iceland (with rates reaching 86% to 87%). Whilst survival rates remain below 80% in Latvia, the Czech Republic and Slovenia, the data shows that for the latter two countries survival rates improved considerably over that period.

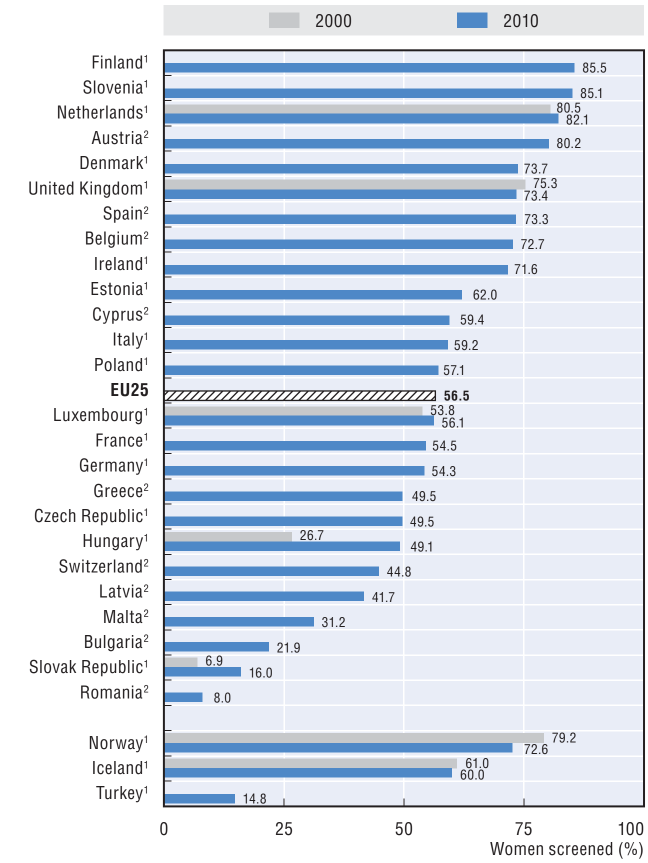
Breast cancer mortality rates have declined in all EU member states over the past decade (Figure 4.8.3). The reduction in mortality rates is a reflection of improvements in early detection and treatment of breast cancer. Countries that reported relatively high mortality rates in 2000 recorded the biggest declines in breast cancer mortality. These countries include the Czech Republic, Estonia, Luxembourg, the Netherlands, Norway and the United Kingdom. Denmark also recorded substantial falls over the last decade but its mortality rate was the highest in 2010. The level of variation across the European Union has declined substantially over the period. In 2000, eight EU member states reported mortality rates higher than 30 deaths per 100 000 females, but in 2010 mortality rates were below this rate in all countries. Despite these gains over the past decade, around 129 000 deaths are caused by breast cancer each year in European countries.

Definitions and comparability

Mammography screening rates reflect the proportion of eligible women who are actually screened. As policies regarding target age groups and screening periodicity differ across countries, the rates are based on each country's specific policy. Some countries ascertain screening based on surveys and others based on encounter data, and this may influence results. Survey-based results may be affected by recall bias. If a country has an organised programme, but women receive a screen outside of the programme, rates may also be underreported.

Survival rates are defined in Indicator 4.7 "Screening, survival and mortality for cervical cancer". See Indicator 1.5 "Mortality from cancer" for definition, source and methodology underlying the cancer mortality rates.

4.8.1. Mammography screening, percentage of women aged 50-69 screened, 2000 to 2010 (or nearest year)

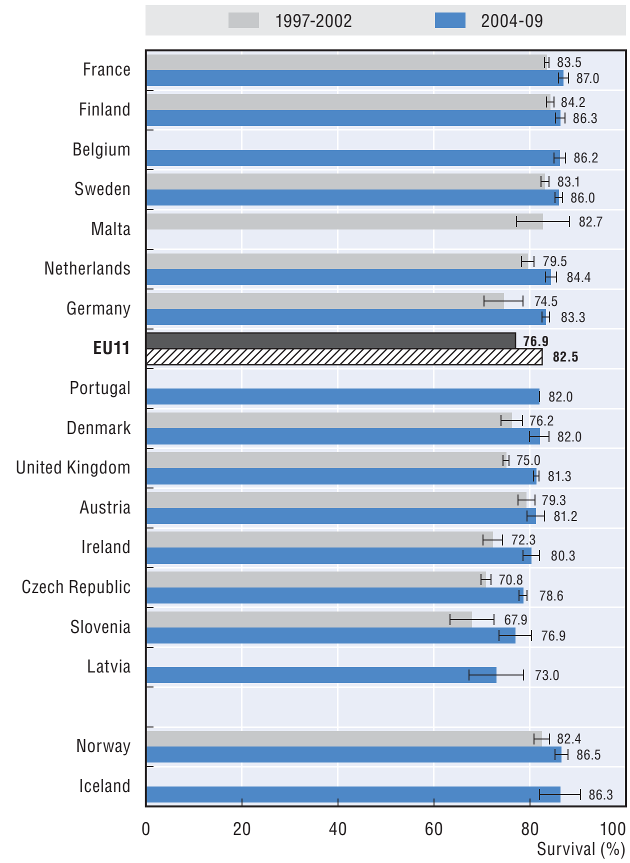


1. Programme. 2. Survey.

Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932705159

4.8.2. Breast cancer five-year relative survival rate, 1997-2002 and 2004-09 (or nearest period)

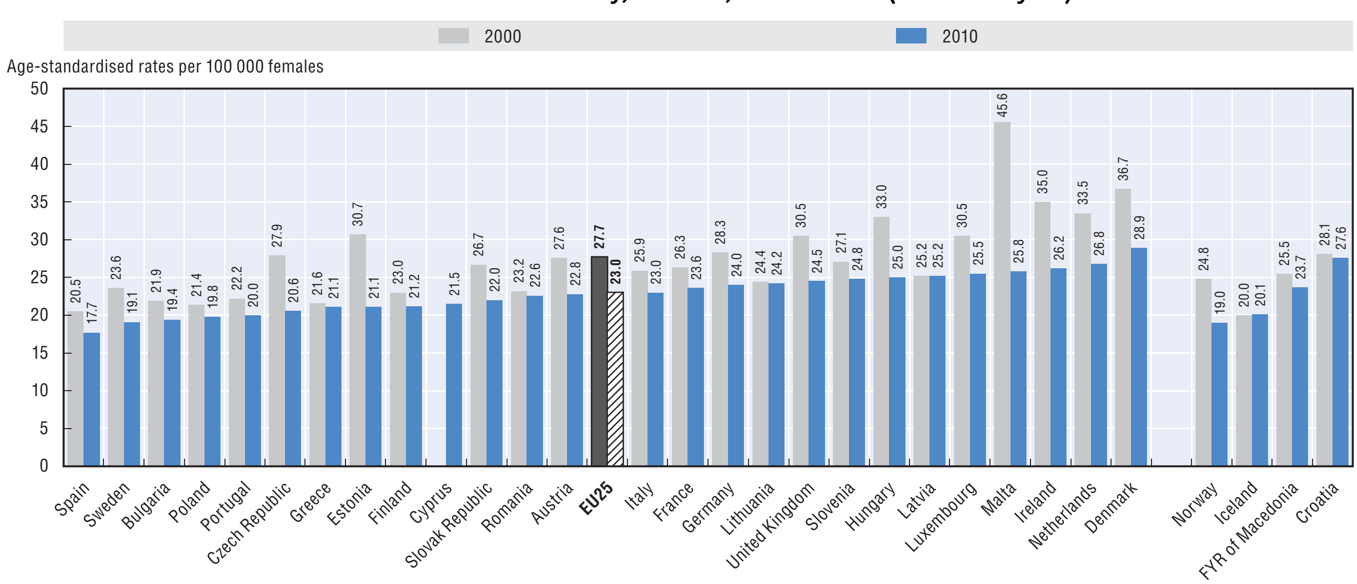


Note: 95% confidence intervals represented by ├─┤.

Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705178

4.8.3. Breast cancer mortality, females, 2000 to 2010 (or nearest year)



Source: *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932705197

Colorectal cancer is the most commonly diagnosed form of cancer in Europe, with over 432 000 new cases diagnosed each year. By 2020, annual incidence is expected to rise to 502 000 cases (IARC, 2011). The annual incidence rate varies from 21 new cases per 100 000 population in Greece to 64 new cases in the Czech Republic. There are several factors that place certain individuals at increased risk for the disease, including age, the presence of polyps, ulcerative colitis, a diet high in fat and genetic background. Furthermore, males are at higher risk of developing colorectal cancer than females (IARC, 2011).

The European Council has recommended implementation of population-based primary screening programmes using the faecal occult blood test (FOBT) for men and women aged 50-74 years (EC, 2010d). Organised screening programmes are being introduced or piloted in several countries and data on screening rates have become available for some European countries. Figure 4.9.1 shows colorectal screening rates using the FOBT test. The use of colonoscopy, which is part of several national policy cancer screening programmes for those with elevated risk, is not captured by these data (ECHIM, 2012). Based on survey data, participation is still relatively low across Europe when compared to long-standing screening programmes for cervical and breast cancer (see Indicators 4.7 and 4.8). Germany is a notable exception where screening rates have reached nearly 55% of the target population in 2010. The low rates observed in most countries may not only reflect the relatively recent implementation of many colorectal cancer screening programmes, but also the organisation and objectives of these programmes. The European Cancer Observer has previously noted that there was considerable variation in the way colorectal cancer screening programmes have been implemented across EU member states (von Karsa *et al.*, 2008).

Advances in diagnosis and treatment of colorectal cancer have increased survival over the last decade. There is compelling evidence in support of the clinical benefit of improved surgical techniques, radiation therapy and combined chemotherapy. Figure 4.9.2 shows the five-year relative survival rate following colorectal cancer diagnosis between 1997-2002 and 2004-09. In the 2004-09 period, the highest survival rate was observed in Belgium, at nearly 65%. The figures indicate that survival rates improved in all eleven countries for which survival data was available for both periods, with countries such as Slovenia, the Czech Republic and Germany witnessing substantial gains in survival rates.

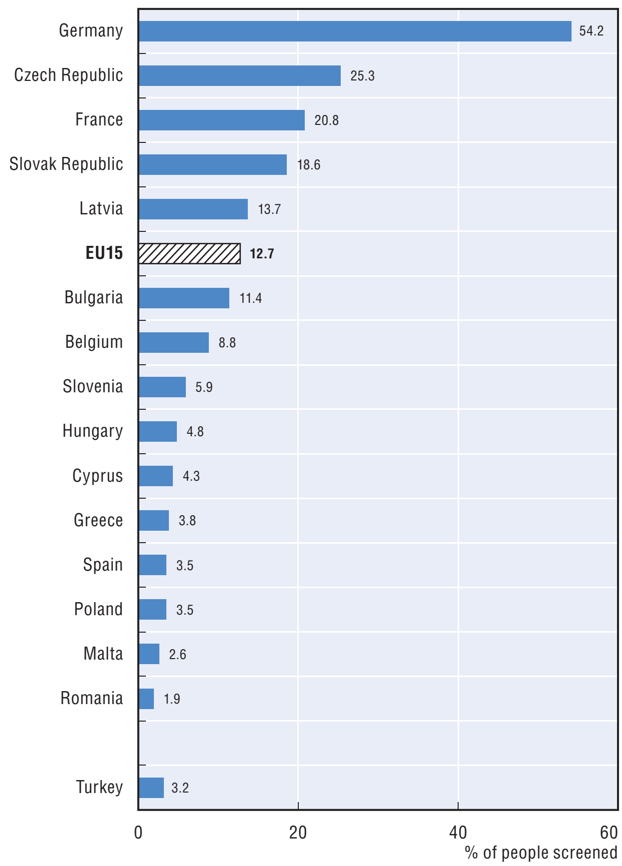
Mortality rates reflect the effect of cancer care, screening and diagnosis as well as changes in incidence (Dickman and Adami, 2006). Between 2000 and 2010, average EU mortality rates fell from 22.2 to 20.5 per 100 000 population, although the trend was not uniform across all countries. Figure 4.9.3 reveals that out of 25 EU member states for which data were available, 15 countries saw a decrease whereas ten countries saw an increase in colorectal cancer mortality. It is noteworthy that the Czech Republic and Germany reported substantial declines in mortality rates and also have the highest screening rates in the European Union. Despite a decrease in their mortality rates for colorectal cancer over the past decade, Hungary continues to have the highest mortality rate for colorectal cancer, followed by the Slovak Republic and the Czech Republic. The number of annual deaths in Europe due to colorectal cancer is expected to rise from 212 000 in 2008 to 248 000 in 2020 (IARC, 2011).

Definitions and comparability

Colorectal screening rates reflect the proportion of persons, aged 50-74, who have undergone a colorectal cancer screening test (faecal occult blood test) in the last two years. Screening rates are based on self-reported responses to the European Health Interview Survey (EHIS) and national health interview surveys.

Survival rates are defined in Indicator 4.7 "Screening, survival and mortality for cervical cancer". See Indicator 1.5 "Mortality from cancer" for definition, source and methodology underlying the cancer mortality rates. Deaths from colorectal cancer are classified to ICD-10 Codes C18-C21.

4.9.1. Colorectal screening, percentage of people screened aged 50-74, 2010 (or nearest year)

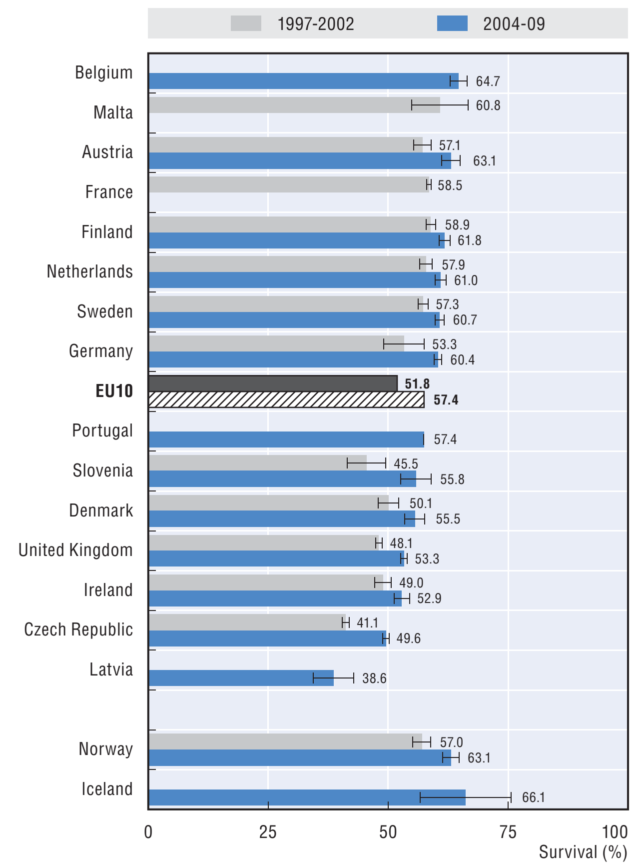


Note: Data based on surveys in all countries.

Source: *Eurostat Statistics Database* (based on ECHI).

StatLink http://dx.doi.org/10.1787/888932705216

4.9.2. Colorectal cancer, five-year relative survival rate, 1997-2002 and 2004-09 (or nearest period)

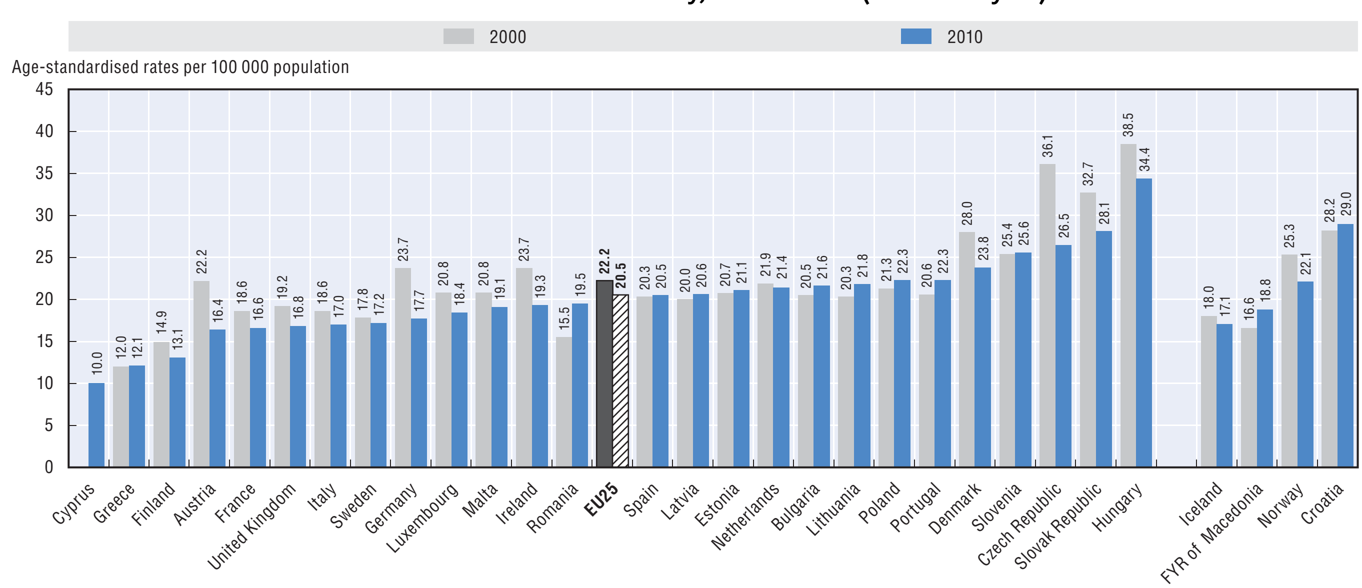


Note: 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932705235

4.9.3. Colorectal cancer mortality, 2000 to 2010 (or nearest year)



Source: *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932705254

All EU member states have established childhood vaccination programmes. All programmes include vaccinations against diseases such as pertussis, diphtheria, tetanus and measles. Reviews of the evidence supporting the efficacy of vaccines against these diseases have concluded that the respective vaccines are safe and highly effective. For example, Peltola *et al.* (1994) reported that 12 years after the introduction of a comprehensive national vaccination programme in Finland measles had virtually been eradicated. Numerous studies have also shown that childhood vaccines can be highly cost-effective (*e.g.* Beutels and Gay, 2003; Banz *et al.*, 2003; Lieu *et al.*, 1994).

Figures 4.10.1 and 4.10.2 show that the overall vaccination of children against diphtheria, tetanus and pertussis (whooping cough) as well as measles is generally high in European countries. In the European Union, more than 93% of children aged around 1 year receive the recommended vaccinations for these diseases. Whilst most countries have been able to increase or maintain their rate of childhood vaccinations over the last twenty years, some countries such as Austria and Denmark have witnessed a decline in coverage for diphtheria, tetanus and pertussis (see Indicator 1.11 for more information on pertussis notifications).

The European Centre for Disease Control (ECDC) reports that Europe has not met its target of eliminating measles by 2010. Measles is a highly infectious disease that can lead to serious complications and, in rare cases, death. Compared to the five years prior, the numbers of measles cases were high in 2010 and 2011 with 30 265 and 30 567 cases, respectively. In 2010, the outbreak in the Roma community in Bulgaria accounted for most of the cases and in 2011, France accounted for 50% of cases. The ECDC argues that efforts to increase and maintain vaccination coverage at a high level will need to be strengthened in order to achieve the renewed target for eliminating measles by 2015 in the WHO European Region (ECDC, 2011).

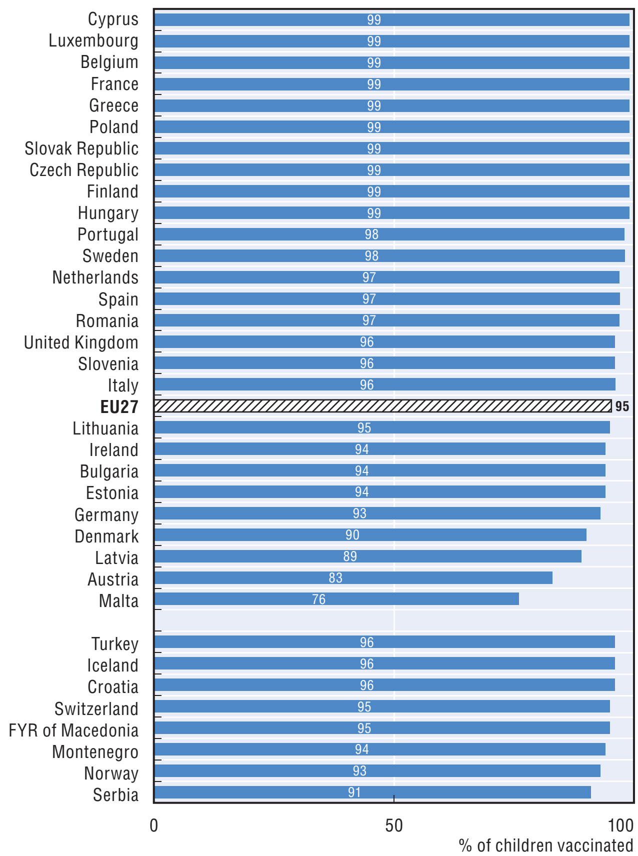
In 2009, there were 5 837 confirmed cases of hepatitis B virus infection reported in the European Union and EEA/EFTA member states. With 1.3 notifications per 100 000 population in EU member states, infection with the hepatitis B virus is relatively uncommon, but can cause acute or long-term illness, which is sometimes fatal (see Indicator 1.11 for more information on hepatitis B notifications). A vaccination for hepatitis B has been available since 1982 and is considered to be 95% effective in preventing infection and its chronic consequences, such as cirrhosis and liver cancer. The WHO recommends that hepatitis B be part of national infant immunisation programme, or in countries with low levels of hepatitis B that routine hepatitis B vaccination should still be given high priority (WHO, 2004c). Figure 4.10.3 shows that the average percentage of children aged around 1 year who are vaccinated for hepatitis B across countries with national programmes is 95%. Countries such as Belgium, Germany and Turkey have been able to expand coverage in a relatively short period of time. Between 2000 and 2010, these countries increased coverage from less than 70% to 90% and more.

A number of countries do not currently require children to be vaccinated against hepatitis B, or do not have routine programmes and consequently the rates for these countries are significantly lower compared to other European countries. For example, in Sweden, vaccination against hepatitis B is not part of the general vaccination programme, and is only recommended to specific risk groups. In France, hepatitis B vaccination has been controversial but vaccination coverage among children has increased in recent years. Alongside the systematic introduction of hepatitis B vaccinations in many countries, there has been decreasing trend of hepatitis B cases, with EU-wide surveillance showing a fall of 17% in the number of cases between 2006 and 2009 (ECDC, 2011).

Definitions and comparability

Vaccination rates reflect the percentage of children at either age 1 or 2 who receive the respective vaccination in the recommended timeframe. Childhood vaccination policies differ slightly across countries. Thus, these indicators are based on the actual policy in a given country. Some countries administer combination vaccines (*e.g.* DTP for diphtheria, tetanus and pertussis) while others administer the vaccinations separately. Some countries ascertain vaccinations based on surveys and others based on encounter data, which may influence the results.

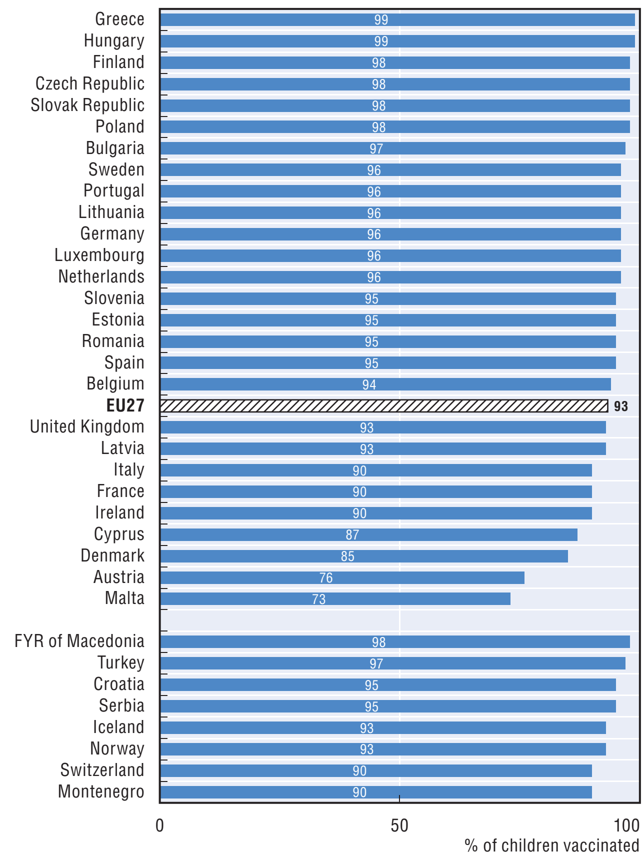
4.10.1. Vaccination rates for diphteria, tetanus and pertussis, children aged around 1, 2010



Source: *OECD Health Data 2012* (based on WHO/UNICEF data).

StatLink http://dx.doi.org/10.1787/888932705273

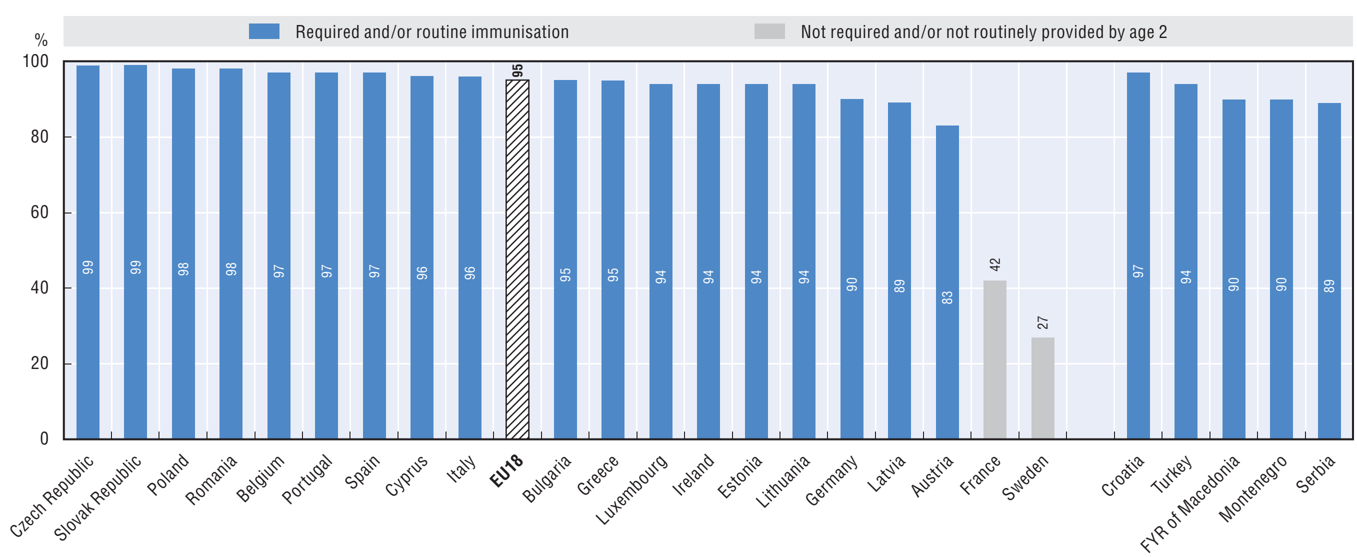
4.10.2. Vaccination rates for measles, children aged around 1, 2010



Source: *OECD Health Data 2012* (based on WHO/UNICEF data).

StatLink http://dx.doi.org/10.1787/888932705292

4.10.3. Vaccination rates for hepatitis B, children aged around 1, 2010



Note: OECD average only includes countries with required or routine immunisation.

Source: *OECD Health Data 2012* (based on WHO/UNICEF data).

StatLink http://dx.doi.org/10.1787/888932705311

Influenza is a common infectious disease and affects people of all ages. WHO Europe reports that each year seasonal influenza affects between 5 to 15% of the population in the northern hemisphere. Most people with the illness recover quickly, but elderly people and those with chronic medical conditions are at higher risk of complications and even death. In any particular year, influenza can have a substantial impact on the health of the population and the health care system (Nicholson *et al.*, 2003; Simonsen *et al.*, 2000).

Vaccines have been used for more than 60 years, and provide a safe and effective means of preventing influenza, and reducing the impact of epidemics. Among the elderly, appropriate influenza vaccines will, in general, reduce the risk of serious complications or death by 70-85% (Ryan, 2006). In 2003, all World Health Assembly (WHA) countries, including all EU member states, committed to the goal of attaining vaccination coverage of the elderly population of at least 50% by 2006 and 75% by 2010 (WHA, 2003; Mereckiene *et al.*, 2008).

Figure 4.11.1 shows that around 2010, across 22 EU member states for which data was available, the average influenza vaccination rate for people aged 65 and over was 45.3%. Vaccination rates across Europe range from 1% in Estonia to 74% in the Netherlands. Whilst there is still some uncertainty about the reasons for the cross-national differences in vaccination rates, studies have highlighted that the lack of public health insurance coverage may be an important determinant in explaining low uptake in some countries (Mereckiene *et al.*, 2008; Kroneman *et al.*, 2003; Kunze *et al.*, 2007). Studies have also shown that personal contact with a doctor is a key determinant of uptake, and that better information through mass-media campaigns, patient and provider education initiatives, and recall and reminder systems can play an important role in improving vaccination rates (Kohlhammer *et al.*, 2007).

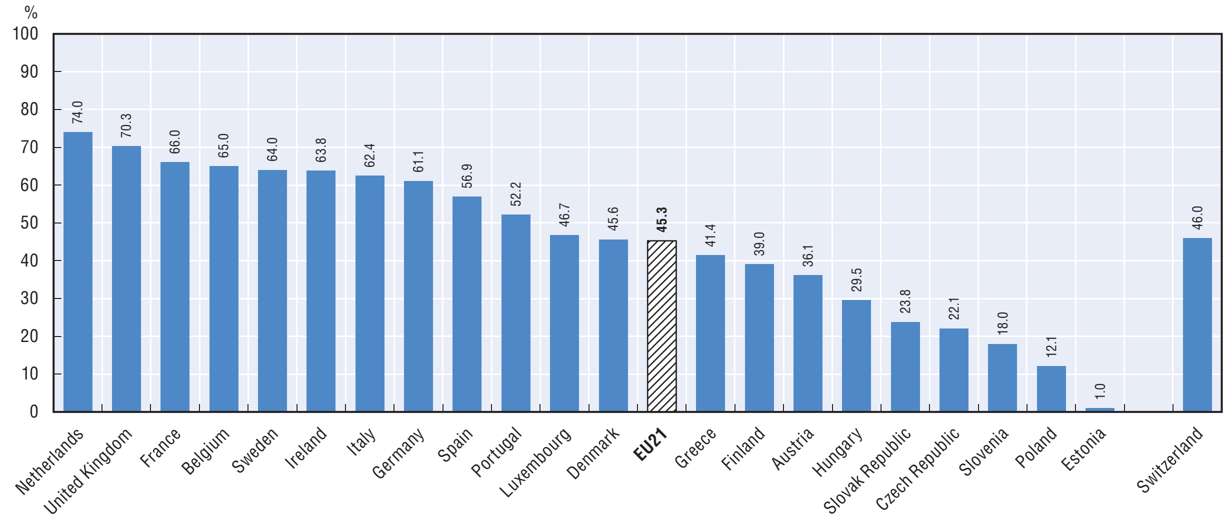
Figure 4.11.2 indicates that between 2000 and 2005, vaccination rates across the European Union increased from 45% to 54% of the elderly population but fell between 2005 and 2010. There appears to be no uniform trend across Europe. Some countries such as France and the Netherlands have maintained their vaccination rates over the decade, countries such as Belgium and Portugal have seen a rise in the rate, and a large number of countries witnessed their rates increase between 2000 and 2005 but then fall again in 2010. No country attained the 75% coverage target in 2010. In late 2009, the Health Ministers of the European Union adopted an EU Council Recommendation to reach the target of 75% vaccination coverage amongst the elderly as early as possible and preferably by the 2014-15 winter season. The recommendation also proposed that the target of 75% coverage should, if possible, be extended to people with chronic conditions.

In June 2009, the WHO declared the first influenza pandemic since 1968-69 (WHO, 2009b). Within 23 weeks of the first diagnosis of the H1N1 influenza virus (also referred to as “swine flu”), there were over 53 000 confirmed cases across all EU member states, Iceland, Liechtenstein and Norway (ECDC, 2011). The estimated infection attack rates remained low in the overall population but were high amongst young people aged 5-19 years. Following the development, testing and production of a H1N1 vaccine, most EU member states included the 2009-10 seasonal influenza vaccine and the pandemic vaccine into their influenza vaccination programmes (Valenciano *et al.*, 2011). Despite the worldwide focus on H1N1, numerous studies have shown that vaccination rates against the virus were lower than expected in a large number of countries (Poland, 2011; Mereckiene *et al.*, 2012). In part, this may be due to the easing of concerns about the threat of H1N1 amongst the general population by the time the vaccine became available. The most important determinant for individuals to take-up H1N1 vaccine was previous exposure to seasonal flu vaccine, leading some researchers to argue that higher vaccination rates for seasonal flu may help uptake during potential future pandemics (Poland, 2011; Nguyen *et al.*, 2011; Bish *et al.*, 2011).

Definitions and comparability

Influenza vaccination rate refers to the number of people aged 65 and older who have received an annual influenza vaccination, divided by the total number of people over 65 years of age. The main limitation in terms of data comparability arises from the use of different data sources, whether survey or programme, which are susceptible to different types of errors and biases. For example, data from population surveys may reflect some variation due to recall errors and irregularity of administration.

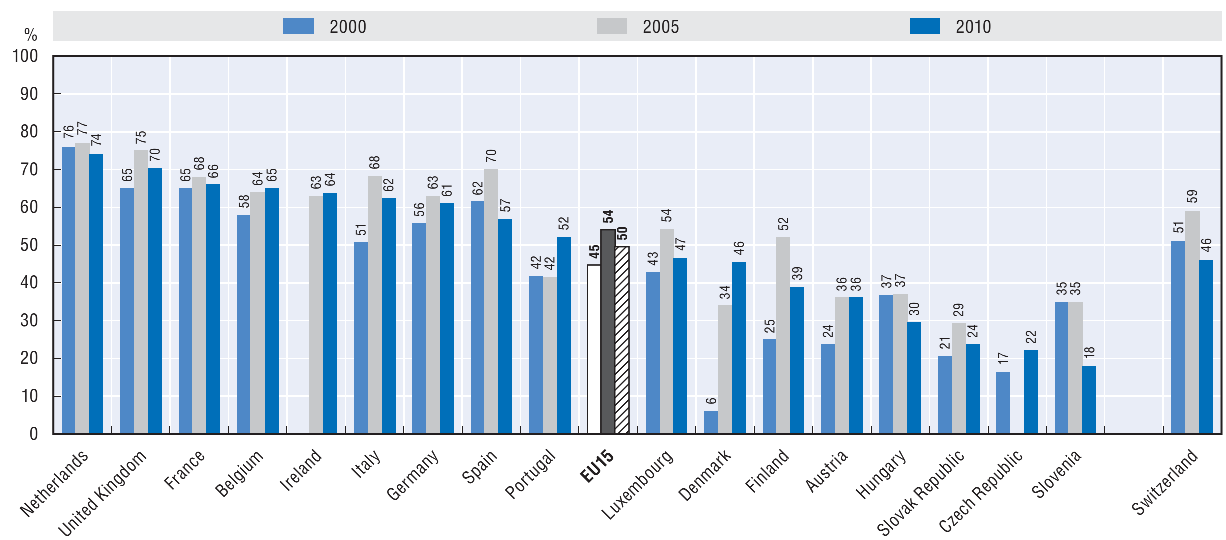
4.11.1. Vaccination rates for influenza, population aged 65 and over, 2010 (or nearest year)



Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705330

4.11.2. Trends in vaccination rates for influenza, population aged 65 and over, 2000-10 (or nearest year)



Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932705349

Chapter 5

Health expenditure and financing

Health care coverage enables access to medical goods and services and provides financial security against unexpected or serious illness. However, the share of the population with health insurance coverage – be it public or private – is an imperfect indicator of accessibility, since the range of services covered and the degree of cost-sharing applied to those services vary across countries.

Most European countries have achieved universal (or near-universal) coverage of health care costs for a core set of services, which usually include consultations with doctors, tests and examinations, and hospital care (Figure 5.1.1). In most countries, dental care and the purchase of prescribed pharmaceuticals are also at least partially covered (Paris *et al*., 2010). Two European countries do not yet have universal health coverage. In Cyprus, an estimated 83% of the population are entitled to public health services, although many currently seek medical care in the private sector and pay out-of-pocket. A new National Health Insurance System has been proposed to modernise public health care and extend coverage (Cyprus National Reform Programme, 2012; Theodorou *et al*., 2012). In Turkey, public coverage has increased rapidly since reforms to implement universal health insurance began in 2003 under the ten-year Health Transformation Programme (OECD, 2008b; Tatar *et al*., 2011). The population covered rose from 70% in 2002 to 83% in 2010 and is continuing to move towards full coverage estimated to be 98% in 2012.

Basic primary health coverage, whether provided through public or private insurance, generally covers a defined "basket" of benefits, in many cases with cost-sharing. In some countries, additional health coverage can be purchased through private insurance to cover any cost-sharing left after basic coverage (complementary insurance), add additional services (supplementary insurance) or provide faster access or larger choice to providers (duplicate insurance). In most European countries, only a small proportion of the population has an additional private health insurance. But in six countries, half or more of the population had a private health insurance in 2010 (Figure 5.1.2).

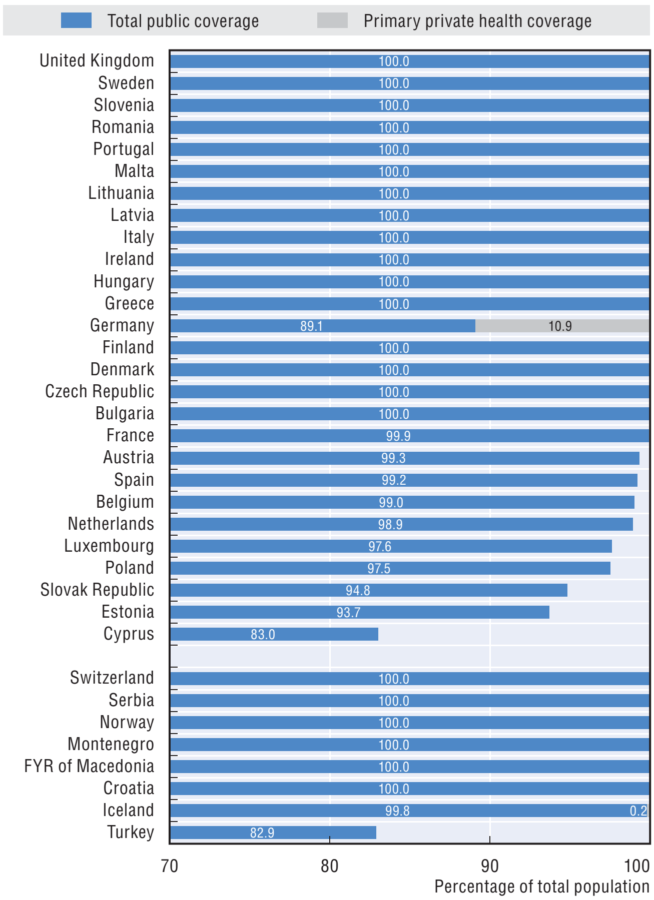
In France, nearly all the population (96%) has a *complementary* private health insurance to cover cost-sharing in the social security system. A large proportion of the population in Belgium, Luxembourg and Slovenia also make use of complementary health insurance. The Netherlands has the largest *supplementary* market (89% of the population), whereby private insurance pays for prescribed pharmaceuticals and dental care that are not publicly reimbursed. *Duplicate* markets, providing faster private-sector access to medical services where there are waiting times in public systems, are largest in Ireland (50%). The population covered by private health insurance has been growing over the past decade in some countries including France, Belgium and Germany, but not in Ireland and Luxembourg (Figure 5.1.3).

The importance of private health insurance is not linked to a countries' economic development. Other factors are more likely to explain market development, including the history of health care financing arrangements and government interventions directed at private health insurance markets (OECD, 2004).

Definition and comparability

Coverage for health care is the share of the population receiving a defined set of health care goods and services under public programmes and through private health insurance. It includes those covered in their own name and their dependents. Public coverage refers both to government programmes, generally financed by taxation, and social health insurance, generally financed by payroll taxes. Take-up of private health insurance is often voluntary, although it may be mandatory by law or compulsory for employees as part of their working conditions. Premiums are generally non-income-related, although the purchase of private cover can be subsidised by the government.

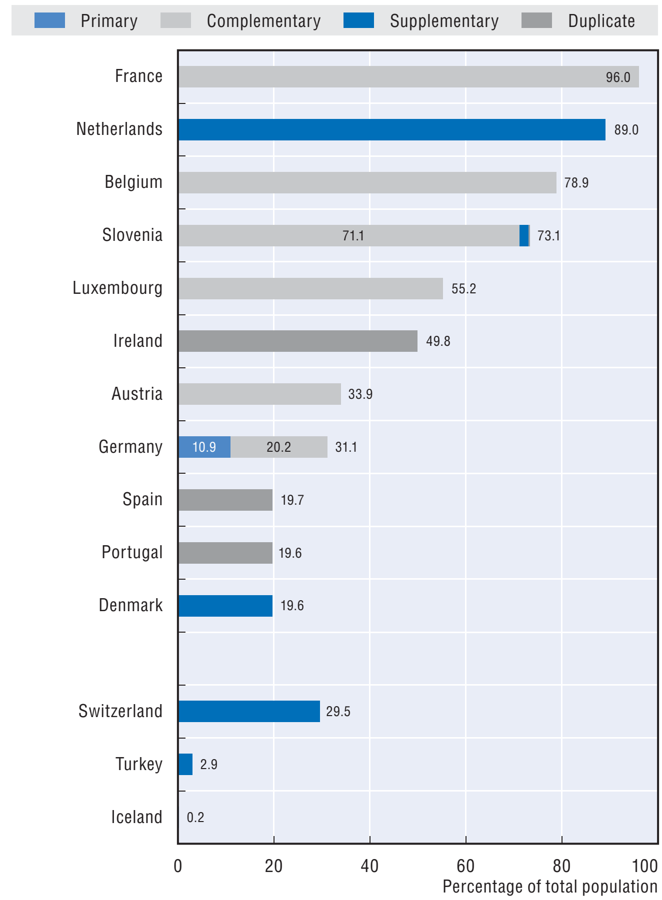
5.1.1. Health insurance coverage for a core set of services, 2010 (or nearest year)



Source: OECD Health Data 2012; WHO Europe (2012).

StatLink http://dx.doi.org/10.1787/888932705368

5.1.2. Private health insurance coverage, by type, 2010 (or nearest year)

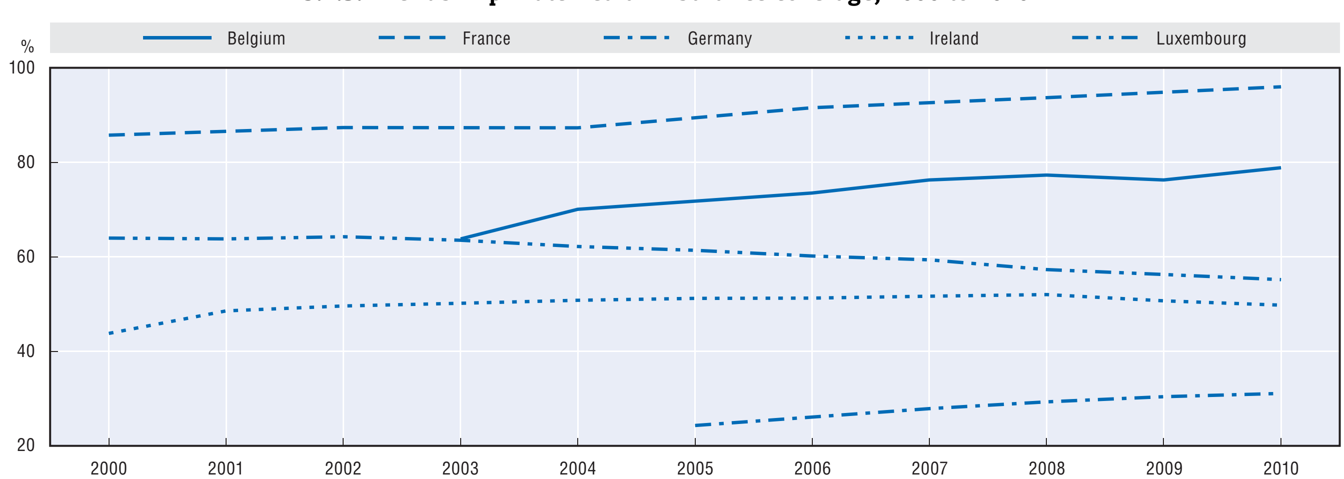


Note: Private health insurance can fulfil several roles. In Denmark, for example, it can be both complementary and supplementary.

Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932705387

5.1.3. Trends in private health insurance coverage, 2000 to 2010



Source: OECD Health Data 2012.

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There are large variations in the level and in the rate of growth of health spending across European countries.

Health expenditure per capita tends to be related with overall income per capita. Hence, it is not surprising that Norway and Switzerland are the two European countries that spent the most on health in 2010, with spending of over EUR 4 000 per person (Figure 5.2.1). Among EU member states, the Netherlands (EUR 3 890), Luxembourg (EUR 3 607) and Denmark (EUR 3 439) were the highest spenders, exceeding by a wide margin the EU average (EUR 2 171). Romania and Bulgaria were the lowest spending countries among EU members. Health spending per capita was also relatively low in the Former Yugoslav Republic of Macedonia and Turkey.

Growth in health spending per capita slowed or fell in real terms in 2010 in almost all European countries, reversing a trend of steady increases in many countries. Health spending per capita had already started to fall in 2009 in some countries that were hardest hit by the economic crisis (*e.g.* Estonia and Iceland), but this was followed by further and deeper cuts in 2010. On average across EU member states, health spending per capita increased by 4.6% per year in real terms between 2000 and 2009, but this was followed by a reduction of 0.6% in 2010 (Figure 5.2.2). While government health spending tended to be maintained at the start of the economic crisis, cuts in spending really began to take effect in 2010 in response to budgetary pressures and the need to reduce large deficits and debts.

In Ireland, cuts in government spending drove total health spending per capita down by nearly 8% in 2010, compared with an average growth rate of 6.5% per year between 2000 and 2009. In Estonia, expenditure on health per capita dropped by 7.3% in 2010 due to reductions in both public and private spending, following an average annual growth rate of 7.2% between 2000 and 2009. In Greece, health spending per capita fell by 6.7% in 2010, after a yearly growth rate of 5.7% during the 2000-09 period. In several other countries (*e.g.* in Belgium, Finland, the Netherlands, Poland, the Slovak Republic and Sweden), there was a marked slowdown in the rate of growth of health spending per capita, although it remained positive.

Reductions in public spending on health were achieved through a range of measures. In Ireland, most of the reductions have been achieved through cuts in wages and a reduction in the number of healthcare workers as well as the fees paid to professionals and pharmaceutical companies. Estonia cut administrative costs in the Ministry of Health and the prices of publicly-reimbursed health services. Investment in health infrastructure has also been put on hold in a number of countries, including the Czech Republic, Estonia, Iceland and Ireland, while gains in efficiency have been pursued through mergers of hospitals or accelerating the move from inpatient care in hospital to outpatient care and day surgery. Other measures have been introduced to make people pay more out of their pockets. For example, Ireland increased the share of direct payments by households for prescribed pharmaceuticals and appliances, while the Czech Republic increased users' charges for hospital stays.

As a result of the slowdown or negative growth in health spending per capita in 2010, the percentage of GDP devoted to health stabilised or declined slightly in many EU member states (see Indicator 5.3 "Health expenditure in relation to GDP").

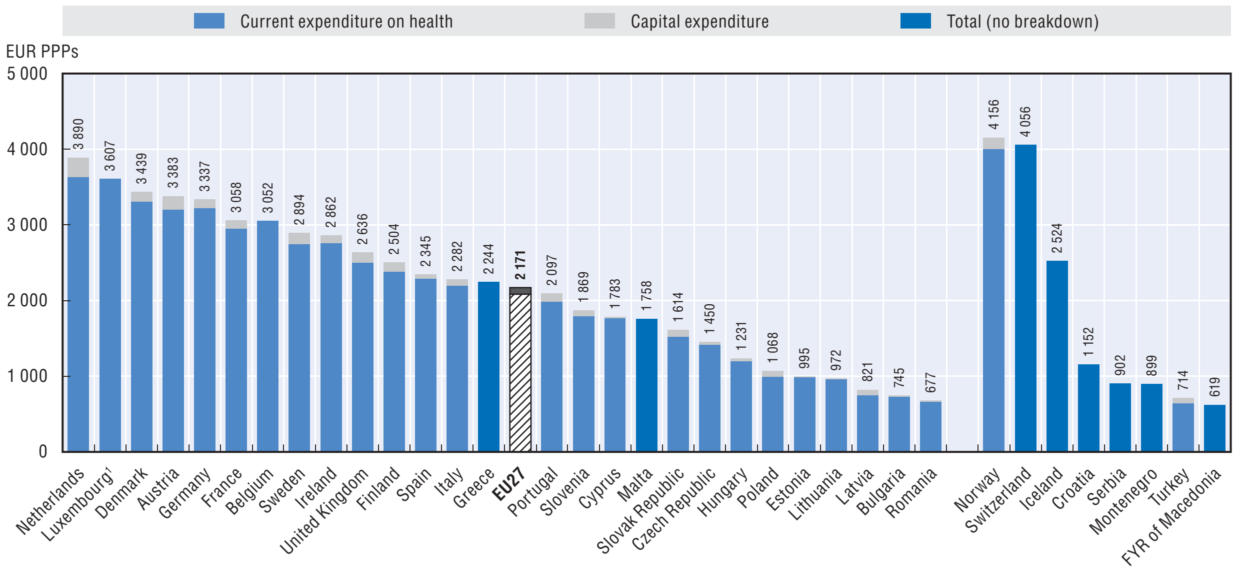
Definition and comparability

Total expenditure on health measures the final consumption of health goods and services (*i.e.* current health expenditure) plus capital investment in health care infrastructure, as defined in the System of Health Accounts manual (OECD, 2000; OECD, Eurostat and WHO, 2011). This includes spending by both public and private sources on medical services and goods, public health and prevention programmes, and administration.

The vast majority of countries now produce health spending data according to the boundaries and definitions proposed in the System of Health Accounts (SHA) manual. The comparability of the functional breakdown of health expenditure data has improved over recent years. However, limitations remain, as some countries have not yet implemented the SHA classifications and definitions. Even among those countries that are submitting data according to the SHA, the comparability of data sometimes needs to be improved. Different practices regarding the treatment of capital expenditure and the inclusion of long-term care in health or social expenditure are some of the main factors affecting data comparability.

Countries' health expenditures are converted to a common currency (Euro) and are adjusted to take account of the different purchasing power of the national currencies, in order to compare spending levels. Economy-wide (GDP) PPPs are used to compare relative expenditure on health in relation to the rest of the economy.

5.2.1. Health expenditure per capita, 2010 (or nearest year)

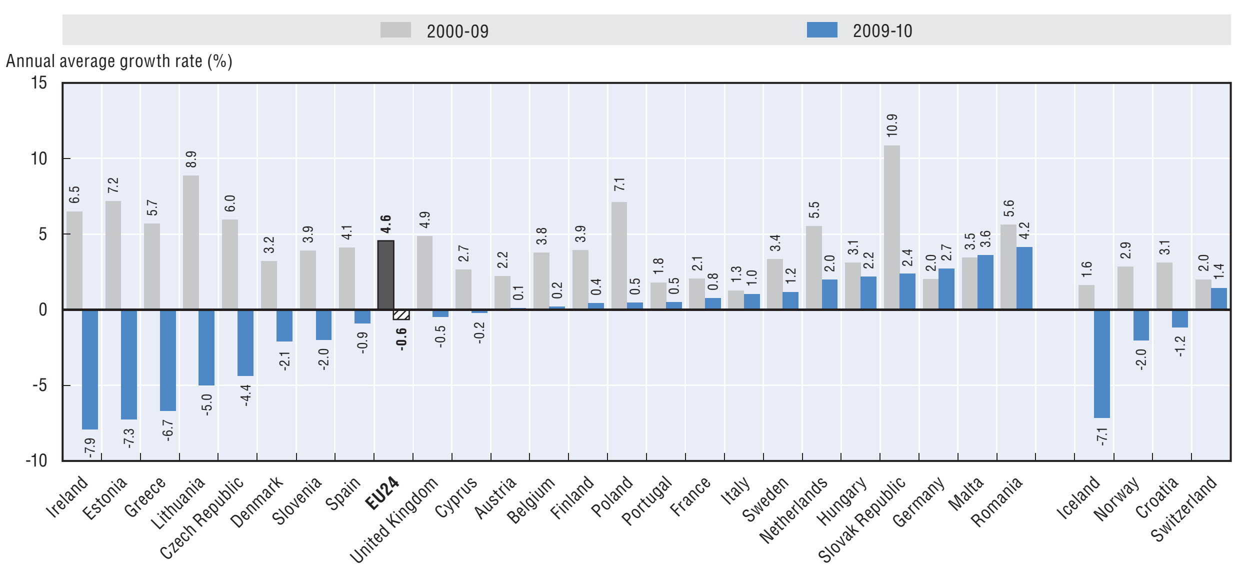


1. Health expenditure is for the insured population rather than resident population.

Source: *OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.*

StatLink http://dx.doi.org/10.1787/888932705425

5.2.2. Annual average growth rate in health expenditure per capita, in real terms, 2000 to 2010 (or nearest year)



Source: *OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.*

StatLink http://dx.doi.org/10.1787/888932705444

In 2010, EU member states devoted on average (unweighted) 9.0% of their GDP to health spending in 2010 (Figure 5.3.1), up significantly from 7.3% in 2000, but down slightly from the peak of 9.2% reached in 2009 following the economic crisis which started in many countries in the middle of 2008. In many countries, public spending on health was maintained in 2009 while GDP was falling strongly, but this was followed in 2010 by the implementation of a range of measures to reduce government health spending as part of broader efforts to reduce large budgetary deficits and debts (see Indicator 5.2).

The Netherlands had the highest share of its GDP allocated to health in 2010 (12%), followed by France and Germany (both at 11.6%). This share remains well below the United States where health expenditure accounted for 17.6% of GDP in 2010. The share of health spending in GDP was lowest in Romania and Turkey, at around 6%.

With the exception of Cyprus, public funding remains the main source of financing of health expenditure in all EU member states, with close to three-quarters of all spending being paid by public sources (see Indicator 5.6). The ranking of countries in terms of public expenditure on health as a share of GDP is not very different from total expenditure on health. The Netherlands (9.6%) and Denmark (9.5%) had the highest share of public expenditure on health to GDP, followed by France (9.0%) and Germany (8.9%). Cyprus had the lowest share of public spending on health to GDP (3.2%), followed by Bulgaria (4.0%) and Latvia (4.1%).

For a more complete understanding of the level of health spending, the health spending to GDP ratio should be considered together with health spending per capita (see Indicator 5.2). Countries having a relatively high health spending to GDP ratio might have relatively low health expenditure per capita, and the converse also holds. For example, Belgium and Portugal both spent around 10.5% of their GDP on health in 2010; however, per capita spending (adjusted to EUR PPP) was nearly 50% higher in Belgium (see Figure 5.2.1).

Changes in the ratio of health spending to GDP are the result of the combined effect of growth in both GDP and health expenditure. Between 2000 and 2010, the annual average growth in health expenditure per capita in real terms was about 4% on average in EU member states, nearly two-times greater than the growth rate in GDP per capita. With the exception of Bulgaria, Iceland and Luxembourg, annual growth in health spending outpaced GDP growth in all European countries over the past decade (Figure 5.3.2). This explains why the share of GDP allocated to health increased from 7.3% to 9.0% during that period.

In France and Germany, the health spending to GDP ratio increased from just over 10% in 2000 to 11.6% in both countries in 2010 (Figure 5.3.3). Health spending per capita grew slightly faster in Germany than in France over the past decade, but so did GDP per capita. The share of GDP was relatively stable in both countries between 2003 and 2008, but it then increased by 1 percentage point in 2009 as health spending continued to grow while GDP fell in both countries.

In the United Kingdom, the health spending share of GDP used to be below the EU average, but since 2006, it is now above average. As in many other European countries, the share of health spending allocated to GDP in the United Kingdom increased by a full percentage point in 2009 following the financial and economic crisis, but came down slightly in 2010.

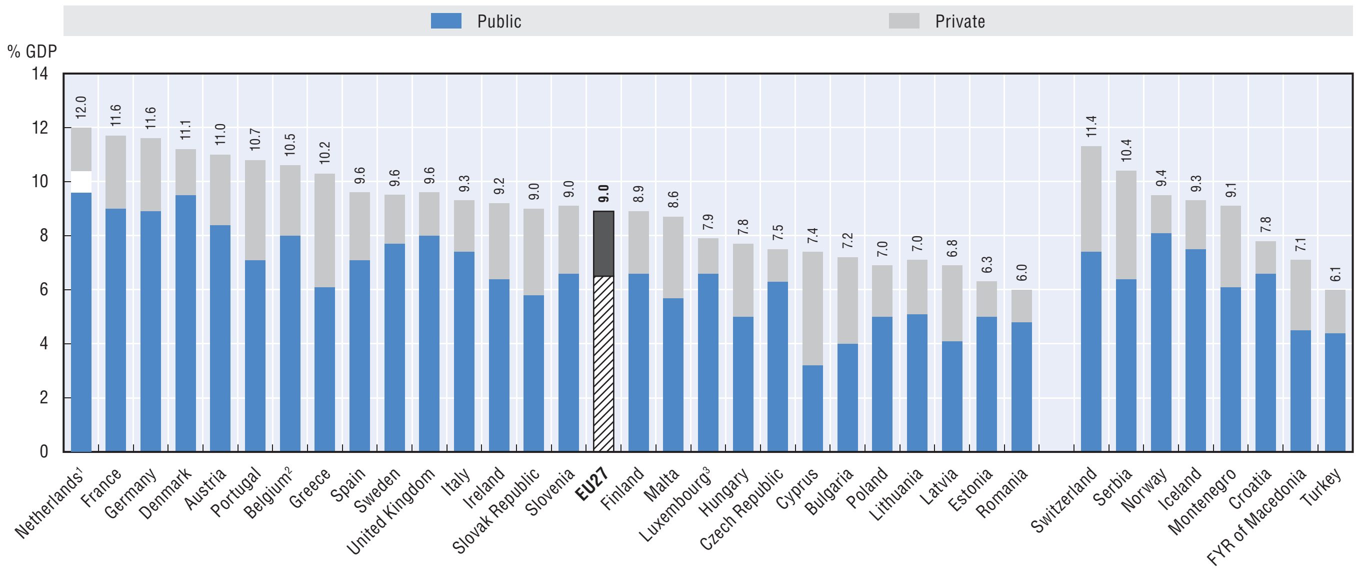
Definition and comparability

See Indicator 5.2 for the definition of total health expenditure.

Gross domestic product (GDP) = final consumption + gross capital formation + net exports. Final consumption of households includes goods and services used by households or the community to satisfy their individual needs. It includes final consumption expenditure of households, general government and non-profit institutions serving households.

In countries, such as Ireland and Luxembourg, where a significant proportion of GDP refers to profits exported and not available for national consumption, gross national income (GNI) may be a more meaningful measure than GDP.

5.3.1. Total health expenditure as a share of GDP, 2010 (or nearest year)

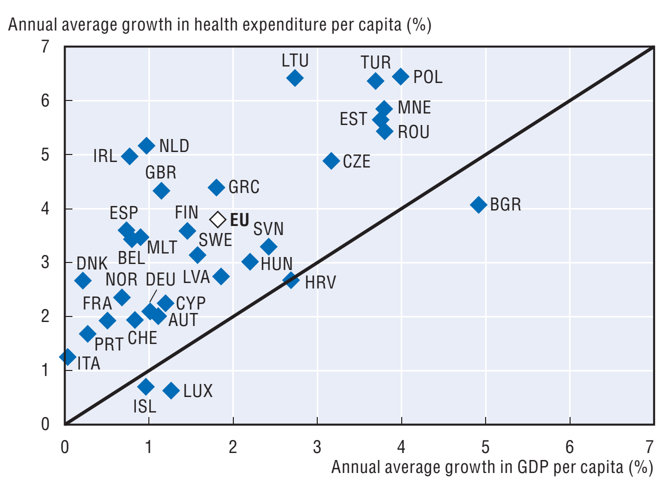


1. In the Netherlands, it is not possible to clearly distinguish the public and private share related to investments.
2. Public and private expenditures are current expenditures (excluding investments).
3. Health expenditure is for the insured population rather than resident population.

Source: OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932705463

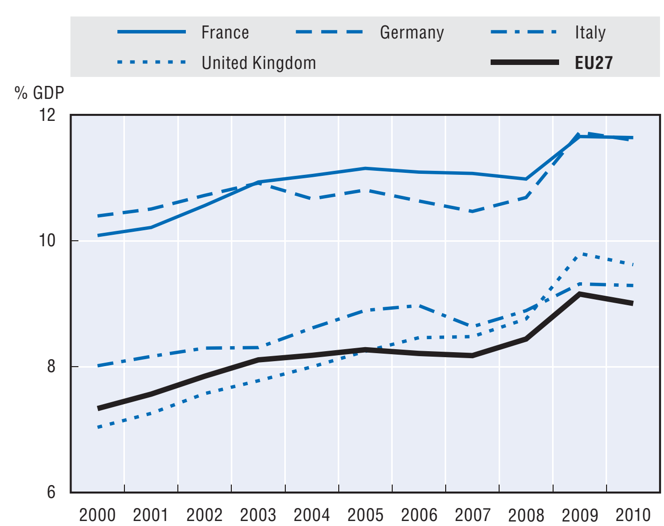
5.3.2. Annual average growth in health expenditure and GDP per capita, in real terms, 2000-10 (or nearest year)



Source: OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932705482

5.3.3. Total health expenditure as a share of GDP, 2000-10, selected EU member states



Source: OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932705501

In 2010, curative and rehabilitative care provided either as inpatient care (including day care) or outpatient care, accounted for 61% of current health spending (excluding capital investment) on average across EU member states (Figure 5.4.1). A further 23% of health spending was allocated to medical goods (including mainly pharmaceuticals, which accounted for 19% of total health spending), 10% to long-term care and the remaining 6% on collective services including public health services and administration.

The allocation of spending by type of care varies significantly across European countries. Spending for inpatient care, day care and outpatient care depends on the institutional arrangements for health care provision. In Portugal and Sweden, for example, the majority of curative and rehabilitative spending is on outpatient care, with relatively low levels of hospital inpatient activity. In some other countries, such as Bulgaria and Romania, inpatient activity (including day care) plays a more dominant role accounting for over two-thirds of all curative and rehabilitative care expenditure.

The other major category of health expenditure is on medical goods, mainly pharmaceuticals (see Indicator 5.5). In Hungary and the Slovak Republic, expenditure on medical goods is in fact a larger spending category than inpatient care or outpatient care, representing 37% of current health expenditure. In Norway and Switzerland, on the other hand, spending on medical goods represents only 12% of total health spending. Differences in the consumption pattern of pharmaceuticals and relative prices play a role in explaining some of the variations between countries.

There are some large differences between countries in their expenditure on long-term care. Countries such as Denmark, the Netherlands and Norway, which have established formal arrangements for the elderly and the dependent population, allocate more than 20% of current health spending to long-term care. In countries with less comprehensive formal long-term care services such as Portugal, the expenditure on long-term care accounts for a much smaller share of total spending.

Figure 5.4.2 compares the real growth rates in inpatient and outpatient spending over the last decade. With inpatient care being highly labour and capital intensive and, therefore, expensive, certain high-income countries with developed health systems have sought to reduce the share of spending in hospitals by shifting to more outpatient and home based care and improving primary care to prevent hospital admissions in the first place. In Iceland, spending on inpatient services decreased by over 3% per year on average between 2000 and 2010, while outpatient care grew on average at an annual rate of 3.2%. In other countries such as the Czech Republic and Poland, spending for both inpatient and outpatient care increased strongly over the past decade, but the growth in inpatient services exceeded outpatient care. On average across EU member states, the growth in inpatient spending was slightly above the growth in outpatient spending during the past decade.

Figure 5.4.3 shows the share of health expenditure allocated to organised public health and prevention programmes. On average, EU member states allocated less than 3% of their spending on health to prevention activities such as vaccination programmes and public health campaigns on alcohol abuse and smoking. However, where such initiatives are carried out at the primary care level, such as in Spain, the prevention function might not be captured separately and may be included under spending on curative care. Countries adopting a more centralised approach to public health and prevention campaigns are better able to identify spending on such programmes.

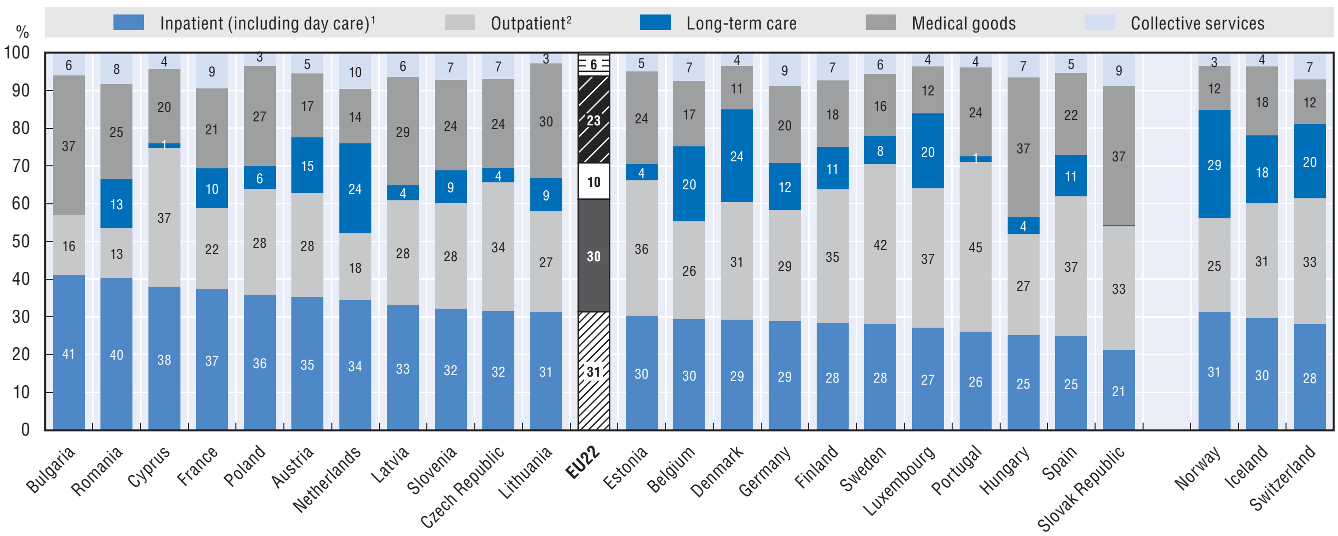
Definition and comparability

The *System of Health Accounts* (OECD, 2000; OECD, Eurostat and WHO, 2011) defines the boundaries of the health system. Current health expenditure comprises personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (public health services and health administration). Curative, rehabilitative and long-term care can also be classified by mode of production (inpatient, day care, outpatient and home care). Day care comprises health care services delivered to patients who are formally admitted to hospitals, ambulatory premises or self standing centres but with the intention to discharge the patient on the same day. An outpatient is not formally admitted to a facility (physician's private office, hospital outpatient centre or ambulatory-care centre) and does not stay overnight. Concerning long-term care, only the health aspect is normally reported as health expenditure. This is the reason why some countries with comprehensive long-term care packages focusing on social care might be ranked surprisingly low when analyzing long-term care expenditure based on SHA data.

Factors limiting the comparability across countries include estimations of long-term care expenditure. Also, expenditure in hospitals may be used as a proxy for inpatient care services, although hospital expenditure may include spending on outpatient, ancillary, and in some cases drug dispensing services (Orosz and Morgan, 2004).

5.4.1. Current health expenditure by function of health care, 2010 (or nearest year)

Countries are ranked by inpatient curative care as a share of current expenditure on health

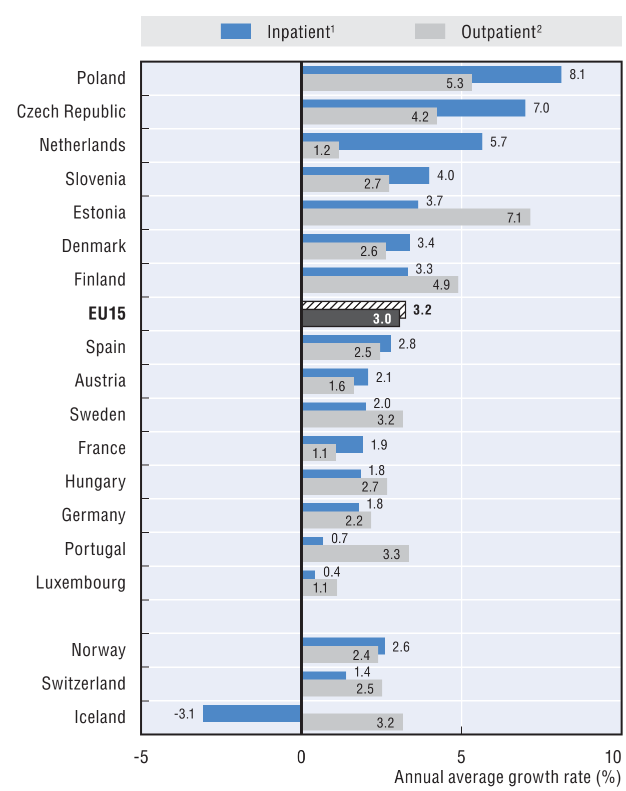


1. Refers to curative and rehabilitative inpatient and day care provided in hospitals, day surgery clinics, etc.
2. Refers to curative and rehabilitative care in doctors' offices, clinics, outpatient departments of hospitals, home care and ancillary services.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932705520

5.4.2. Growth in inpatient and outpatient expenditure per capita, in real terms, 2000-10 (or nearest year)

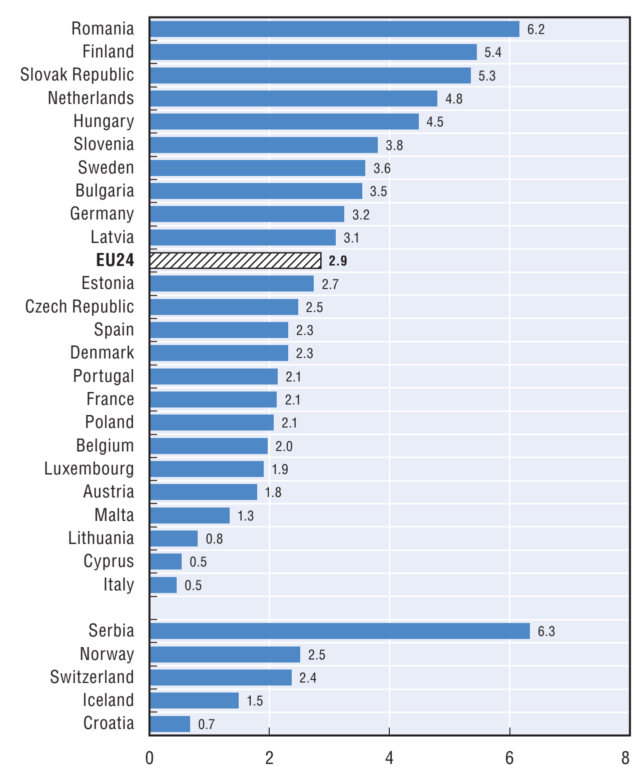


1. Including day care.
2. Including home care and ancillary services.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932705539

5.4.3. Expenditure on organised public health and prevention programmes, 2010 (or nearest year)



Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; *WHO Global Health Expenditure Database*.

StatLink http://dx.doi.org/10.1787/888932705558

Pharmaceutical expenditure accounted for almost a fifth (19%) of all health expenditure on average in EU member states in 2010, making it the third biggest spending component after inpatient and outpatient care. Increased spending on pharmaceuticals has contributed to the overall rise in total health expenditure over the past decade, although the growth rate turned negative in several countries in 2010. The relationship between pharmaceutical expenditure and other health expenditure is a complex one, in that increased expenditure on pharmaceuticals to tackle different diseases may reduce the need for costly hospitalisations and interventions now or in the future.

The total pharmaceutical bill across the European Union reached more than EUR 190 billion in 2010. However, there are wide variations in pharmaceutical spending per capita across countries, reflecting differences in volume, structure of consumption and pharmaceutical prices (Figure 5.5.1, left panel). At EUR 528, Ireland spent more on pharmaceuticals than any other European country on a per capita basis. This is 50% above the average across EU member states of EUR 349. Other countries with relatively high pharmaceutical expenditure include Germany (EUR 492), Belgium (EUR 479) and France (EUR 468). At the other end of the scale, Romania spent only EUR 164 per capita. Denmark, Estonia, Latvia and Poland are also among the countries that have relatively low pharmaceutical spending per capita, at less than 70% of the EU average.

Pharmaceutical spending accounted for 1.6% of GDP on average across EU member states, ranging from below 1% in countries such as Denmark, Luxembourg and Norway, to more than 2% in Bulgaria, Hungary, the Slovak Republic and Serbia (Figure 5.5.1, right panel).

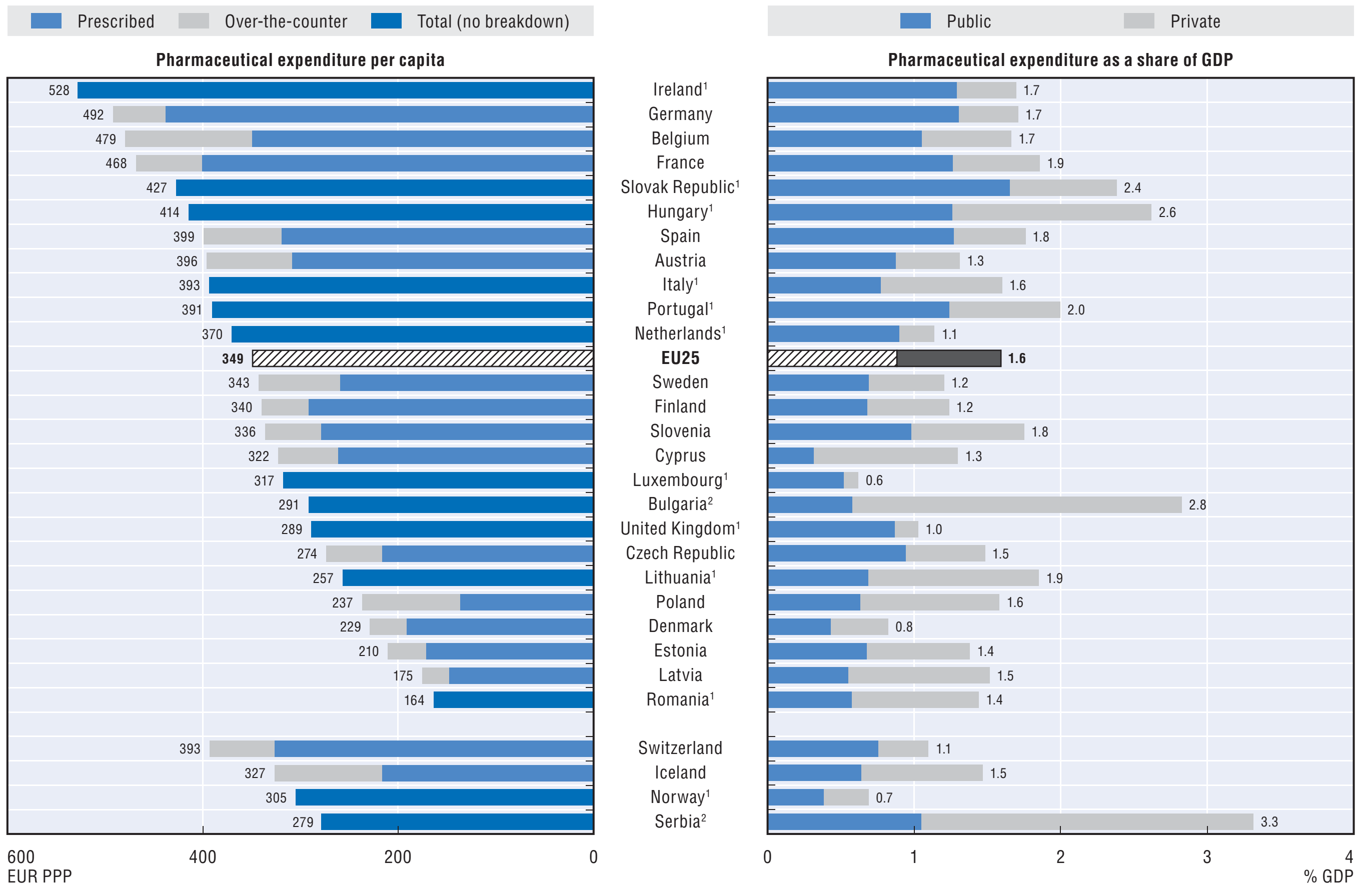
The economic crisis in many European countries has had a significant effect on pharmaceutical spending (Figure 5.5.2). Between 2000 and 2009, pharmaceutical spending increased on average in EU member states by 3.2% per year in real terms (slightly below the growth rate in total health spending), but the average growth in pharmaceutical spending in 2010 came to a halt (0.0%). In Ireland, pharmaceutical spending per capita increased at a rate of over 8% per year in real terms on average between 2000 and 2009, but the growth rate slowed down markedly to less than 2% in 2010. This slowdown followed the introduction of a series of measures to control pharmaceutical spending in Ireland, including large price reductions and increases in co-payments by households. Several other countries severely affected by the economic crisis cut their spending on pharmaceuticals drastically in 2010: Iceland (–6.3%), Lithuania (–4.6%) and Portugal (–3.3%).

Many European countries have attempted to control pharmaceutical expenditures even before the recession via a mix of price and volume controls directed at physicians and pharmacies, as well as policies targeting specific products (OECD, 2010b). In Germany, pharmaceutical companies must now enter into rebate negotiations with health insurance funds for new innovative medicines, putting an end to the previous free-pricing regime. Spain mandated a price reduction for generics and introduced a general rebate applicable for all medicines prescribed by NHS physicians in 2010. In France, price reductions or rebates on pharmaceuticals have often been used as adjustment variables to contain health spending growth while in the United Kingdom caps were introduced on pharmaceutical companies' profits relating to NHS sales.

Definition and comparability

Pharmaceutical expenditure covers spending on prescription medicines and self-medication, often referred to as over-the-counter products. In some countries, the data also include other medical non-durable goods (adding approximately 5% to the spending). The expenditure also includes pharmacists' remuneration when the latter is separate from the price of medicines. Pharmaceuticals consumed in hospitals are excluded (their inclusion would add another 15% to pharmaceutical spending approximately). Final expenditure on pharmaceuticals includes wholesale and retail margins and value-added tax.

5.5.1. Expenditure on pharmaceuticals per capita and as a share of GDP, 2010 (or nearest year)

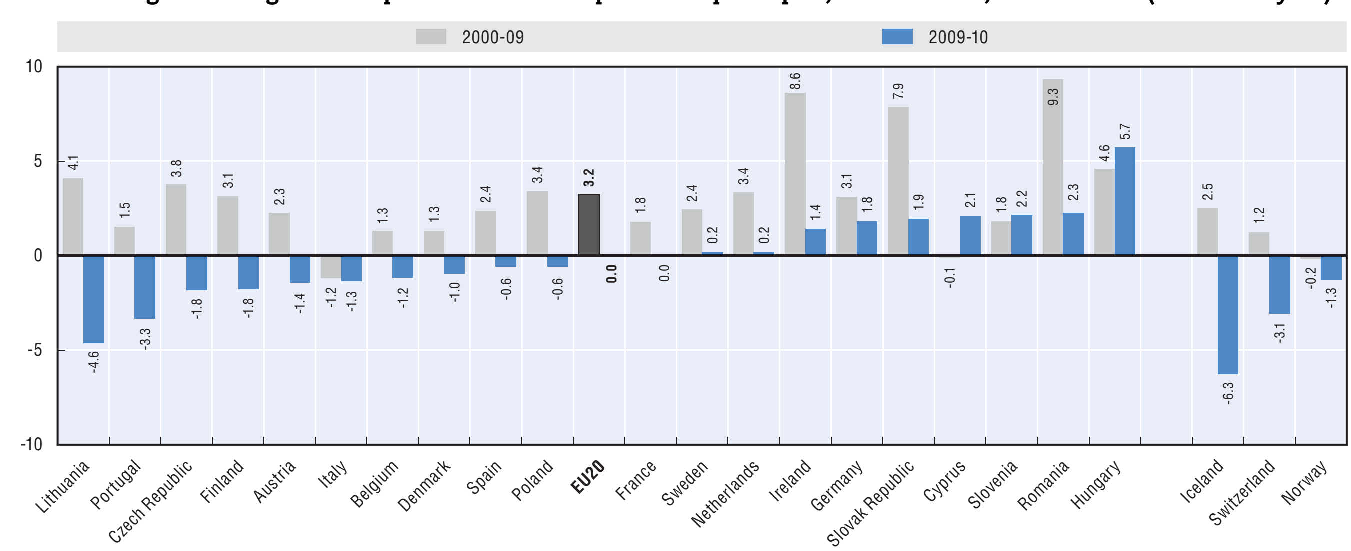


1. Includes medical non-durables.
2. Total medical goods.

Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932705577

5.5.2. Average annual growth in pharmaceutical expenditure per capita, in real terms, 2000 to 2010 (or nearest year)



Source: *OECD Health Data 2012; Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932705596

All European countries use a mix of public and private financing to pay for health care. In some countries, public purchasing of health care is generally confined to the use of government revenues. In others where there is social insurance, public financing uses these social contributions, in addition to any general government revenues. Private financing of health care consists of payments by households (either as stand-alone payments or co-payments) as well as various forms of private health insurance intended to replace, complement or supplement publicly financed coverage. In addition, occupational health care may be directly provided by employers, and other health care benefits may be provided by charities and other non-government organisations.

The public sector is the main source of health care financing in all European countries, except Cyprus (Figure 5.6.1). In 2010, on average in the European Union, 73% of health care was publicly financed. Public financing accounted for over 80% in the Netherlands, the Nordic countries (except Finland), Luxembourg, the Czech Republic, the United Kingdom and Romania. The share was the lowest in Cyprus (43%), and Bulgaria, Greece and Latvia (55-60%).

The economic crisis has had an effect on the mix of public and private health financing as public spending has been contained or cut in many countries severely affected by the recession. In Ireland, the share of public spending decreased by nearly 6 percentage points between 2008 and 2010 and stands now at 70%. Substantial falls have also been observed in the Slovak Republic and Bulgaria. On the other hand, some countries saw their public spending share rise since 2008, including Cyprus and Norway.

Although public funding is the main source of funds for health spending in nearly all European countries, this does not imply that the public sector plays the dominant financing role for all health services and goods. Figure 5.6.2 shows the shares of financing for medical services and medical goods separately. On average across the European Union, the public sector covers a much higher proportion of the costs of medical services compared with medical goods (comprising mainly pharmaceutical products). Over 80% of the costs of health care services are covered by public funds compared with just over 50% for medical goods. In Romania, public funding covers more than 90% of expenditure on medical services, but only about 40% of spending on medical goods. Germany, Luxembourg and the Netherlands are the only countries where public spending coverage for medical goods exceeds 70%.

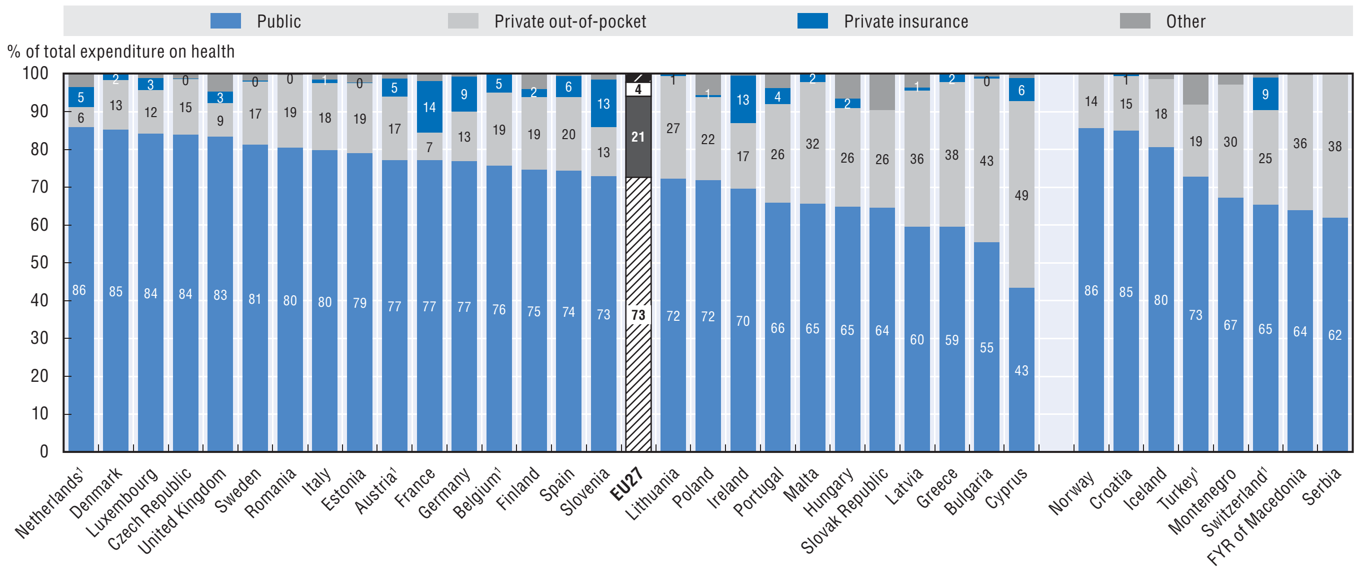
After public financing, the main source of funding for health expenditure is out-of-pocket payments. In 2010, the share of out-of-pocket payments was highest in Cyprus, Bulgaria and Greece. It was the lowest in the Netherlands (6%), France (7%) and the United Kingdom (9%). The share of out-of-pocket spending has increased over the past decade in about half of EU member states while it has decreased in the other half. The Slovak Republic has seen the biggest increase in the share of health spending paid directly by households, with a rise of over 15 percentage points between 2000 and 2010. This increase is due to a rise in co-payments on prescribed pharmaceuticals, higher spending by households on non-prescribed medicines, increased use of private providers and informal payments to public providers (Szalay *et al.*, 2011). The share of out-of-pocket payments has also increased substantially in Bulgaria, Cyprus and Malta. In some countries hard hit by the economic crisis, the public coverage for certain services has been reduced in recent years, with a growing share of payments being transferred to households. In Iceland, the share of out-of-pocket spending has increased by 2.2 percentage points between 2008 and 2010, although this has not totally offset the previous reduction in this share between 2000 and 2008. In Ireland, the share of out-of-pocket spending increased by 1.7 percentage points between 2008 and 2010, and is now 2.1 percentage points greater than in 2000.

On the other hand, some other countries have extended public coverage for health services in recent years to improve access to care, resulting in a lower share of health spending paid directly by households. Turkey is the most striking example; it has moved since 2003 to extend public coverage for health services for a larger proportion of the population (see Indicator 5.1), with public funding now accounting for 73% of total health spending, equal to the EU average. This has led to a reduction of nearly 10 percentage points in the share of direct payments by households over the past decade. The share of out-of-pocket payments has also come down substantially in Poland and Switzerland, although it still remains slightly above the EU average.

Definition and comparability

There are three elements of health care financing: sources of funding (households, employers and the state), financing schemes (*e.g.* compulsory or voluntary insurance), and financing agents (organisations managing financing schemes). Here "financing" is used in the sense of financing schemes as defined in the *System of Health Accounts* (OECD, 2000; OECD, Eurostat and WHO, 2011). Public financing includes general government revenues and social security funds. Private financing covers households' out-of-pocket payments, private health insurance and other private funds (NGOs and private corporations). Out-of-pocket payments are expenditures borne directly by the patient. They include cost-sharing and, in certain countries, estimations of informal payments to health care providers.

5.6.1. Expenditure on health by type of financing, 2010 (or nearest year)

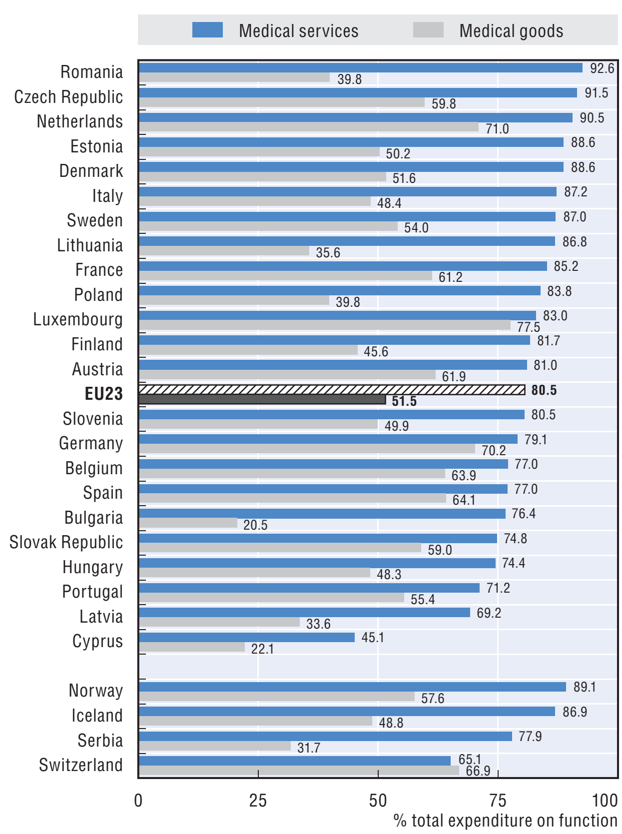


1. Data refer to current expenditure.

Source: OECD Health Data 2012; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932705615

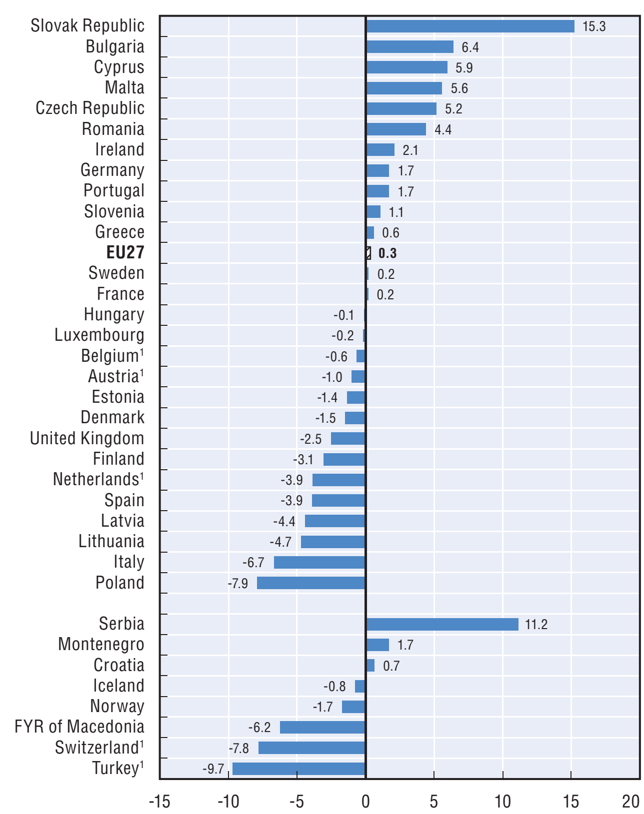
5.6.2. Public share of expenditure on medical services and goods, 2010 (or nearest year)



Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932705634

5.6.3. Change in share of out-of-pocket spending in total health spending, 2000 to 2010 (or nearest year)



1. Data refer to current expenditure.

Source: OECD Health Data 2012; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932705653

Trade in health services and its most high-profile component, medical tourism, has attracted a great deal of media attention in recent years. The growth in "imports" and "exports" has been fuelled by a number of factors. Technological advances in information systems and communication allow patients or third party purchasers of health care to seek out quality treatment at lower cost and/or more immediately from health care providers in other countries. An increase in the portability of health cover, whether as a result of regional arrangements with regard to public health insurance systems, or developments in the private insurance market, are also poised to further increase patient mobility. All this is coupled with a general increase in the temporary movement of populations for business, leisure or specifically for medical purposes between countries.

While the major part of international trade in health services does involve the physical movement of patients across borders to receive treatment, to get a full measure of imports and exports, there is also a need to consider goods and services delivered remotely such as pharmaceuticals ordered from another country or diagnostic services provided from a doctor in one country to a patient in another. The magnitude of such trade remains small, but advances in technology mean that this area also has the potential to grow rapidly.

Data on imports of health services and goods are available for most European countries and amounted to more than EUR 3 billion in 2010. The vast majority of this trade is between European countries. However, due to data gaps and under-reporting, this is likely to be a significant underestimate. With health-related imports reaching nearly EUR 1 500 million, Germany is by far the greatest importer in absolute terms, followed by the Netherlands and France. Nevertheless, in comparison to the size of the health sector as a whole, trade in health goods and services remains marginal for most countries. Even in the case of Germany, reported imports represent only around 0.5% of Germany's health expenditure. The share rises above 1% of health spending only in Cyprus and Iceland, as these smaller countries see a higher level of cross-border movement of patients. Luxembourg is a particular case because a large part of its insured population is living and consuming health services in neighbouring countries.

A smaller number of countries report total exports of health-related travel expenditure and other health services, totalling around EUR 2.5 billion in 2010 (Figure 5.7.2). For many countries these figures are, again, likely to be significant underestimates. In absolute values, the Czech Republic and France reported exports in excess of EUR 400 million, while the exports of Turkey, Poland and the United Kingdom exceeded EUR 200 million. In relation to overall health spending, health-related exports remain marginal in most countries, except in the Czech Republic and Croatia where they equate to 4.2% and 2.8% of overall health spending. These countries have become popular destinations for patients from other European countries, particularly for services such as dental surgery. The growth rate in health-related exports has exceeded 20% per year over the past five years in the Czech Republic.

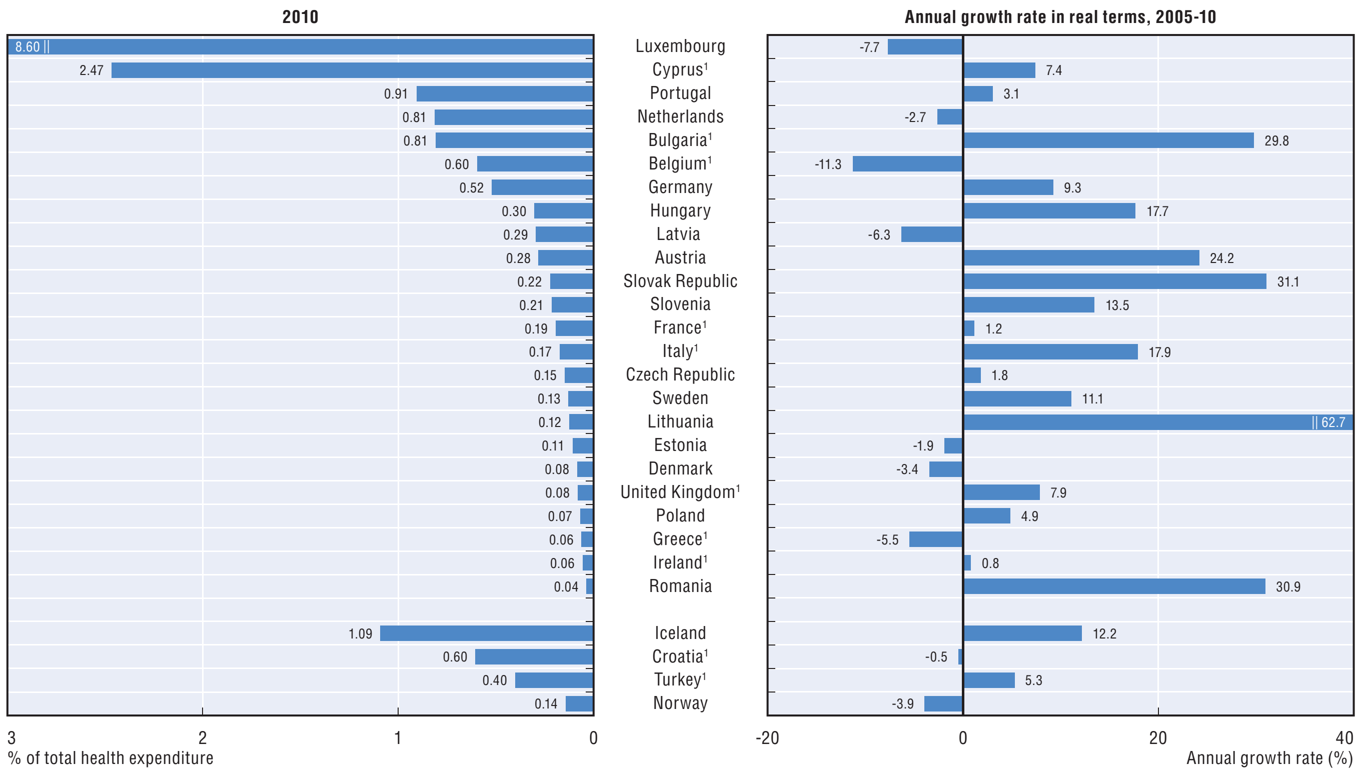
Patient mobility in Europe may see further growth as a result of an EU directive adopted in 2011 which supports patients in exercising their right to cross border health care and promotes co-operation between health systems (Directive 2011/24/EU).

Definition and comparability

The *System of Health Accounts* includes imports within current health expenditure, defined as imports of medical goods and services for final consumption. Of these the purchase of medical services and goods, by resident patients while abroad, is currently the most important in value terms.

In the balance of payments, trade refers to goods and services transactions between residents and non-residents of an economy. According to the *Manual on Statistics of International Trade in Services*, "Health-related travel" is defined as "goods and services acquired by travellers going abroad for medical reasons". This category has some limitations in that it covers only those persons travelling for the specific purpose of receiving medical care, and does not include those who happen to require medical services when abroad. The additional item "Health services" covers those services delivered across borders but can include medical services delivered between providers as well as to patients.

5.7.1. Imports of health care services as share of total health expenditure, 2010 and annual growth rate in real terms, 2005-10 (or nearest year)

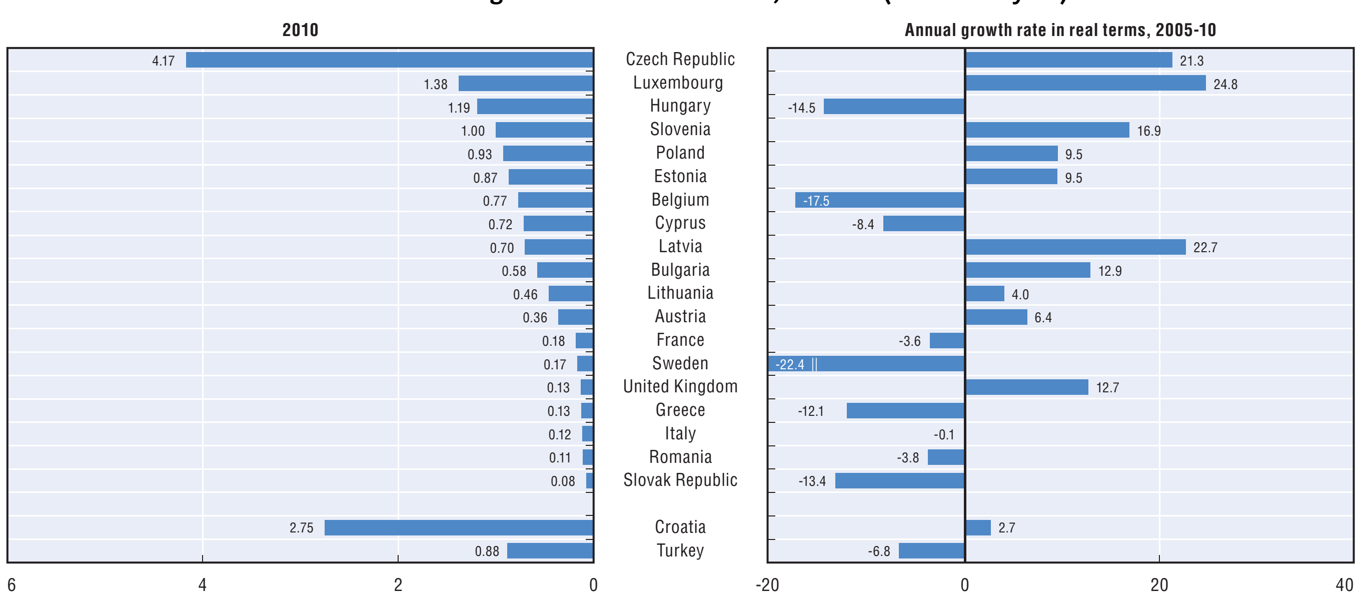


1. Refers to balance of payments concept of health-related travel and health services of personal, recreational and cultural services.

Source: *OECD Health Data 2012* and *OECD-Eurostat Trade in Services Database.*

StatLink http://dx.doi.org/10.1787/888932705672

5.7.2. Exports of health-related travel or other services as share of total health expenditure, 2010 and annual growth rate in real terms, 2005-10 (or nearest year)



Note: Health-related exports occur when domestic providers supply medical services to non-residents.

Source: *OECD-Eurostat Trade in Services Database.*

StatLink http://dx.doi.org/10.1787/888932705691

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ANNEX A

Additional information on demographic and economic context

Table A.1. **Total population, mid-year, thousands, 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Austria	7 048	7 467	7 549	7 678	8 012	8 390
Belgium	9 154	9 656	9 859	9 967	10 251	10 896
Bulgaria	7 867	8 490	8 862	8 718	8 170	7 534
Cyprus	573	615	509	580	694	804
Czech Republic	9 607	9 856	10 303	10 333	10 272	10 520
Denmark	4 580	4 929	5 123	5 141	5 340	5 548
Estonia	1 216	1 361	1 477	1 569	1 369	1 340
Finland	4 430	4 606	4 780	4 986	5 176	5 363
France	45 684	50 772	53 880	56 709	59 062	62 959
Germany[1]	55 608	61 098	61 549	62 679 |	82 212	81 777
Greece	8 322	8 793	9 643	10 157	10 918	11 308
Hungary	9 984	10 338	10 711	10 374	10 211	10 000
Ireland	2 829	2 957	3 411	3 514	3 804	4 475
Italy	50 200	53 822	56 434	56 719	56 942	60 483
Latvia	2 121	2 359	2 512	2 663	2 373	2 239
Lithuania	2 779	3 140	3 413	3 698	3 500	3 287
Luxembourg	314	339	364	382	436	507
Malta	327	303	317	354	386	416
Netherlands	11 487	13 039	14 150	14 952	15 926	16 615
Poland	29 561	32 526	35 578	38 111	38 454	38 184
Portugal	8 858	8 680	9 766	9 983	10 226	10 637
Romania	18 407	20 250	22 207	23 202	22 443	21 438
Slovak Republic	4 068	4 538	4 980	5 299	5 389	5 430
Slovenia	1 580	1 670	1 832	1 998	1 989	2 049
Spain	30 455	33 815	37 439	38 850	40 263	46 071
Sweden	7 485	8 043	8 311	8 559	8 872	9 378
United Kingdom	52 350	55 663	56 314	57 248	58 893	62 231
EU	**386 892**	**419 123**	**441 271**	**454 423**	**481 581**	**499 879**
Croatia	4 140	4 412	4 600	4 777	4 468	4 419
FYR of Macedonia	1 392	1 629	1 891	1 882	2 026	2 055
Iceland	176	204	228	255	281	318
Montenegro	. .	. .	. .	. .	614	617
Norway	3 581	3 876	4 086	4 242	4 491	4 889
Serbia	. .	. .	. .	. .	7 516	7 291
Switzerland	5 328	6 181	6 319	6 712	7 184	7 822
Turkey	27 438	35 294	44 522	56 104	67 393	73 142

| Break in series.

1. Population figures for Germany prior to 1991 refer to West Germany.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932705710

Table A.2. **Share of the population aged 65 and over, mid-year, 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Austria	12.2	14.1	15.4	14.9	15.4	17.6
Belgium	12.0	13.4	14.3	14.9	16.8	17.2
Bulgaria	7.5	9.6	11.9	13.2	16.3	17.6
Cyprus[1]	. .	. .	10.8	10.9	11.3	13.0
Czech Republic	9.5	12.0	13.4	12.5	13.8	15.4
Denmark	10.6	12.3	14.4	15.6	14.8	16.6
Estonia	10.5	11.7	12.5	11.6	15.1	17.0
Finland	7.3	9.2	12.0	13.4	14.9	17.3
France	11.6	12.9	13.9	14.0	16.1	16.9
Germany[2]	10.8	13.1	15.5	15.5 |	16.4	20.6
Greece	8.2	11.1	13.1	13.7	16.6	19.1
Hungary	9.0	11.6	13.4	13.3	15.1	16.7
Ireland	11.1	11.1	10.7	11.4	11.2	11.5
Italy	9.3	10.9	13.1	14.9	18.3	20.3
Latvia	. .	12.0	12.9	11.8	15.0	17.4
Lithuania	. .	10.0	11.2	10.9	13.9	16.3
Luxembourg	10.9	12.5	13.6	13.4	14.1	13.9
Malta	. .	. .	8.3	10.4	12.2	15.2
Netherlands	9.0	10.2	11.5	12.8	13.6	15.4
Poland	5.8	8.2	10.1	10.1	12.2	13.5
Portugal	7.9	9.4	11.3	13.4	16.2	18.0
Romania	. .	8.6	10.3	10.4	13.3	14.9
Slovak Republic	6.9	9.1	10.5	10.3	11.4	12.3
Slovenia	7.8	9.9	11.4	10.7	14.0	16.5
Spain	8.2	9.6	11.0	13.6	16.8	17.0
Sweden	11.8	13.7	16.3	17.8	17.3	18.3
United Kingdom	11.7	13.0	14.9	15.7	15.8	16.5
EU	**. .**	**. .**	**12.5**	**13.0**	**14.7**	**16.4**
Croatia[3]	. .	. .	. .	. .	16.0	17.1
FYR of Macedonia	. .	. .	. .	. .	10.0	11.7
Iceland	8.1	8.8	9.9	10.6	11.6	12.1
Montenegro[4]	. .	. .	. .	. .	11.9	12.7
Norway	11.0	12.9	14.8	16.3	15.2	15.0
Serbia	. .	. .	. .	. .	16.1	16.9
Switzerland	10.2	11.4	13.8	14.6	15.3	17.5
Turkey	3.6	4.4	4.7	4.4	5.4	7.1

| Break in series.
1. Data for Cyprus in 1980 refers to 1982.
2. Population figures for Germany prior to 1991 refer to West Germany.
3. Data for Croatia in 2000 refers to 2002.
4. Data for Montenegro in 2000 refers to 2003.

Source: OECD Health Data 2012; Eurostat Statistics Database.

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Table A.3. **Crude birth rate, per 1 000 population, 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Austria	17.9	15.0	12.0	11.8	9.8	9.4
Belgium	16.8	14.7	12.6	12.4	11.4	11.9
Bulgaria	17.8	16.3	14.5	12.1	9.0	10.0
Cyprus[1]	26.2	19.2	20.4	18.3	12.2	11.8
Czech Republic	13.4	15.0	14.9	12.6	8.8	11.1
Denmark	16.6	14.4	11.2	12.3	12.6	11.4
Estonia	16.6	15.8	15.0	14.2	9.5	11.8
Finland	18.5	14.0	13.2	13.1	11.0	11.4
France	17.9	16.7	14.9	13.4	13.1	12.7
Germany[2]	17.4	13.3	10.1	11.5 |	9.3	8.3
Greece	18.9	16.5	15.4	10.1	9.5	10.1
Hungary	14.7	14.7	13.9	12.1	9.6	9.0
Ireland	21.5	21.8	21.7	15.1	14.4	16.5
Italy	18.1	16.7	11.3	10.0	9.5	9.3
Latvia	16.7	14.6	14.1	14.2	8.5	8.6
Lithuania	22.5	17.7	15.2	15.4	9.8	10.8
Luxembourg	16.0	13.0	11.4	12.9	13.1	11.6
Malta	26.2	17.6	17.7	15.2	11.5	9.6
Netherlands	20.8	18.3	12.8	13.2	13.0	11.1
Poland	22.6	16.8	19.6	14.4	9.8	10.8
Portugal	24.1	20.8	16.2	11.7	11.7	9.5
Romania	19.1	21.1	17.9	13.6	10.4	9.9
Slovak Republic	21.7	17.8	19.1	15.1	10.2	11.1
Slovenia	17.6	15.9	15.7	11.2	9.1	10.9
Spain	21.7	19.5	15.3	10.3	9.9	10.5
Sweden	13.7	13.7	11.7	14.5	10.2	12.3
United Kingdom	17.5	16.2	13.4	13.9	11.5	13.0
EU	**19.0**	**16.6**	**14.9**	**13.1**	**10.7**	**10.9**
Croatia	18.4	13.8	14.8	11.6	9.8	9.8
FYR of Macedonia	31.7	23.2	21.0	18.8	14.5	11.8
Iceland	28.0	19.7	19.8	18.7	15.3	15.4
Montenegro	..	..	..	..	15.0	12.0
Norway	17.3	16.7	12.5	14.4	13.2	12.6
Serbia	..	..	..	..	9.8	9.4
Switzerland	17.7	16.1	11.7	12.5	10.9	10.3
Turkey	..	..	..	..	20.2	16.9

| Break in series.

1. Data for Cyprus in 1960 refers to 1961.
2. Population figures for Germany prior to 1991 refer to West Germany.

Source: Eurostat Statistics Database.

StatLink http://dx.doi.org/10.1787/888932705748

Table A.4. **Fertility rate, number of children per women aged 15-49, 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Austria	2.7	2.3	1.7	1.5	1.4	1.4
Belgium	2.5	2.3	1.7	1.6	1.7	1.9
Bulgaria	2.3	2.2	2.1	1.8	1.3	1.5
Cyprus[1]	..	..	2.5	2.4	1.6	1.5
Czech Republic	2.1	1.9	2.1	1.9	1.1	1.5
Denmark	2.5	2.0	1.5	1.7	1.8	1.9
Estonia	..	..	2.0	2.0	1.4	1.6
Finland	2.7	1.8	1.6	1.8	1.7	1.9
France	2.7	2.5	1.9	1.8	1.9	2.0
Germany	2.4	2.0	1.6	1.5	1.4	1.4
Greece	2.2	2.4	2.2	1.4	1.3	1.5
Hungary	2.0	2.0	1.9	1.8	1.3	1.3
Ireland	3.8	3.9	3.2	2.1	1.9	2.1
Italy	2.4	2.4	1.7	1.4	1.3	1.4
Latvia[2]	..	..	..	..	1.2	1.2
Lithuania	..	2.4	2.0	2.0	1.4	1.6
Luxembourg	2.3	2.0	1.5	1.6	1.8	1.6
Malta	..	..	2.0	2.0	1.7	1.4
Netherlands	3.1	2.6	1.6	1.6	1.7	1.8
Poland	3.0	2.2	2.3	2.0	1.4	1.4
Portugal	3.1	2.8	2.2	1.6	1.6	1.4
Romania[3]	..	..	2.4	1.8	1.3	1.4
Slovak Republic	3.1	2.4	2.3	2.1	1.3	1.4
Slovenia	2.2	2.2	2.1	1.5	1.3	1.6
Spain	2.9	2.9	2.2	1.4	1.2	1.4
Sweden	2.2	1.9	1.7	2.1	1.5	2.0
United Kingdom	2.7	2.4	1.9	1.8	1.6	2.0
EU	**..**	**..**	**2.0**	**1.8**	**1.5**	**1.6**
Croatia[2]	..	..	..	..	1.3	1.5
FYR of Macedonia	..	..	..	..	1.9	1.6
Iceland	4.3	2.8	2.5	2.3	2.1	2.2
Montenegro	..	..	..	..	..	1.7
Norway	2.9	2.5	1.7	1.9	1.9	2.0
Serbia	..	..	..	..	1.5	1.4
Switzerland	2.4	2.1	1.6	1.6	1.5	1.5
Turkey	6.4	5.0	4.6	3.1	2.3	2.0

1. Data for Cyprus in 1980 and 2010 refer to 1982 and 2009 respectively.
2. Data for Latvia and Croatia in 2000 refer to 2002.
3. Data for Romania in 2010 refers to 2009.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932705767

Table A.5. GDP per capita in 2010 and average annual growth rates, 1980 to 2010

	GDP per capita in EUR PPP	Annual growth rate in real terms		
	2010	1980-90	1990-2000	2000-10
Austria	30 793	2.0	2.2	1.1
Belgium	28 943	1.9	1.9	0.8
Bulgaria	10 678	..	..	4.9
Cyprus	24 223	..	..	1.3
Czech Republic	19 431	..	0.5	3.1
Denmark	30 941	2.0	2.2	0.2
Estonia[3]	15 678	..	6.5	3.7
Finland	28 095	2.6	1.7	1.4
France	26 268	1.9	1.5	0.5
Germany[2, 4]	28 769	2.1	1.3	1.0
Greece	21 898	0.2	1.6	1.8
Hungary[4]	15 806	..	1.9	2.2
Ireland	31 147	3.3	6.0	0.7
Italy	24 561	2.4	1.6	-0.2
Latvia	12 469	..	..	4.3
Lithuania	13 848	..	..	4.9
Luxembourg	66 207	4.5	3.6	1.2
Malta	20 293	..	..	0.7
Netherlands	32 442	1.7	2.5	0.9
Poland	15 286	..	3.7	4.0
Portugal	19 549	3.0	2.7	0.2
Romania	11 353	..	..	4.6
Slovak Republic[5]	17 914	..	3.7	4.7
Slovenia	20 728	..	1.9	2.4
Spain	24 477	2.6	2.4	0.7
Sweden	30 287	1.9	1.7	1.5
United Kingdom	27 400	2.6	2.6	1.1
EU27 (unweighted)	**24 055**	**..**	**..**	**2.0**
EU27 (weighted)[1]	**24 474**	**..**	**..**	**1.0**
Croatia	14 505	..	..	2.7
FYR of Macedonia	8 872	..	..	2.4
Iceland	27 188	1.6	1.5	0.9
Montenegro	10 142	..	..	4.5
Norway	44 149	2.1	3.1	0.6
Serbia[6]	8 405	..	..	4.7
Switzerland	35 718	1.6	0.4	0.8
Turkey	11 970	2.8	1.8	3.0

1. The weighted average is calculated based on total GDP divided by the total population of the 27 EU member states.
2. Data prior to 1990 refers to Western Germany.
3. Data available from 1993.
4. Data available from 1991.
5. Data available from 1992.
6. Latest year 2009.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; *WHO Global Health Expenditure Database*.

StatLink http://dx.doi.org/10.1787/888932705786

Table A.6. **Total expenditure on health per capita in 2010, average annual growth rates, 2000 to 2010**

	Total health expenditure per capita in EUR PPP	Annual growth rate per capita in real terms[1]				
	2010	2006/07	2007/08	2008/09	2009/10	2000-10 (or latest year)
Austria	3 383	3.7	3.2	2.3	0.1	2.0
Belgium[9]	3 052	2.5	4.2	2.8	0.2	3.4
Bulgaria[5]	745	5.8	9.3	-1.7	. .	4.1
Cyprus[7]	1 783	-0.3	16.4	4.4	-0.2	2.2
Czech Republic	1 450	2.4	6.8	11.1	-4.4	4.9
Denmark	3 439	1.8	0.6	5.3	-2.1	2.7
Estonia	995	10.7	12.7	-0.5	-7.3	5.6
Finland	2 504	1.1	3.1	0.7	0.4	3.6
France	3 058	1.5	-1.4	2.7	0.8	1.9
Germany	3 337	1.8	3.4	4.3	2.7	2.1
Greece	2 244	3.6	2.6	0.5	-6.7	4.4
Hungary	1 231	-6.8	-1.7	-3.2	2.2	3.0
Ireland	2 862	5.6	9.6	2.7	-7.9	5.0
Italy	2 282	-2.8	1.0	-1.6	1.0	1.3
Latvia[6]	821	13.6	-8.1	-14.8	. .	2.7
Lithuania[8]	972	10.8	9.7	-2.2	-5.0	6.4
Luxembourg[3]	3 607	-4.9	-7.1	7.5	. .	0.6
Malta	1 758	-3.3	-0.2	-0.8	3.6	3.5
Netherlands	3 890	. .	3.2	3.6	2.0	5.2
Poland	1 068	9.1	14.3	6.4	0.5	6.4
Portugal	2 097	1.7	2.1	2.7	0.5	1.7
Romania[7]	677	9.6	11.5	-3.0	4.2	5.4
Slovak Republic	1 614	16.5	9.2	8.2	2.4	10.0
Slovenia	1 869	1.0	9.2	1.9	-2.0	3.3
Spain	2 345	2.8	4.6	2.8	-0.9	3.6
Sweden	2 894	2.2	2.1	1.4	1.2	3.1
United Kingdom	2 636	3.0	1.5	6.3	-0.5	4.3
EU27 (unweighted)	**2 171**	**3.6**	**4.5**	**1.9**	**-0.6**	**3.8**
EU27 (weighted)[2]	**2 470**	**1.7**	**2.3**	**3.4**	**0.4**	**2.8**
Croatia	1 152	12.7	5.2	-5.9	-1.2	2.7
FYR of Macedonia	619	-7.2	3.9	-0.6	5.7	0.1
Iceland	2 524	3.2	-0.9	-1.4	-7.1	0.7
Montenegro[3]	899	0.4	8.1	11.7	. .	5.9
Norway	4 156	2.7	2.6	1.6	-2.0	2.4
Serbia[3]	902	18.1	6.0	-1.3	. .	8.9
Switzerland	4 056	1.2	2.0	2.9	1.4	1.9
Turkey[4]	714	10.2	0.0	. .	. .	6.4

1. Using national currency units at 2005 GDP price level.
2. The weighted average is calculated based on total health spending divided by the total population of the 27 EU member states.
3. Most recent year 2009.
4. Most recent year 2008.
5. Data for 2003-09.
6. Data for 2004-09.
7. Data since 2003.
8. Data since 2004.
9. Excluding investment.

Source: *OECD Health Data 2012*; *Eurostat Statistics Database*; *WHO Global Health Expenditure Database*.

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Table A.7. **Total expenditure on health, percentage of GDP, 1980 to 2010**

	1980	1990	2000	2005	2007	2008	2009	2010
Austria	7.4 |	8.4	10.0	10.4	10.3	10.5	11.2 |	11.0
Belgium[2]	6.3	7.2	8.1	10.1	9.6	10.0	10.7	10.5
Bulgaria	..	..	6.2	7.3	6.8	7.0	7.2	..
Cyprus	..	..	5.8	6.4	6.1	6.9	7.4	7.4
Czech Republic	..	4.5 |	6.3 |	6.9	6.5	6.8	8.0	7.5
Denmark	8.9	8.3	8.7 |	9.8	10.0	10.2	11.5	11.1
Estonia	..	..	5.3	5.0	5.2	6.0	7.0 |	6.3
Finland	6.3	7.7 |	7.2	8.4	8.0	8.3	9.2	8.9
France	7.0	8.4 |	10.1	11.2	11.1	11.0	11.7	11.6
Germany	8.4	8.3 |	10.4	10.8	10.5	10.7	11.7	11.6
Greece	5.9	6.7	8.0	9.7	9.8	10.1	10.6	10.2
Hungary[3]	..	7.1	7.2	8.4	7.7	7.5	7.7	7.8
Ireland	8.2	6.0	6.1	7.6	7.8	8.9	9.9	9.2
Italy	..	7.7	8.0	8.9	8.6 |	8.9	9.3	9.3
Latvia	..	..	6.0	6.4	7.0	6.6	6.8	..
Lithuania	..	..	6.5	5.8	6.2	6.6	7.5	7.0
Luxembourg	5.2	5.4 |	7.5	7.9	7.1	6.8	7.9	..
Malta	..	..	6.7	9.3	8.7	8.3	8.5	8.6
Netherlands	7.4	8.0 |	8.0	9.8 |	10.8	11.0	11.9	12.0
Poland	..	4.8	5.5 |	6.2	6.3	6.9	7.2 |	7.0
Portugal	5.1	5.7 |	9.3	10.4	10.0	10.2	10.8	10.7
Romania	..	..	5.2	5.5	5.2	5.4	5.6	6.0
Slovak Republic	..	..	5.5	7.0	7.8	8.0	9.2	9.0
Slovenia	..	..	8.3 |	8.3	7.8	8.3	9.3	9.0
Spain	5.3	6.5 |	7.2 |	8.3	8.5	8.9	9.6	9.6
Sweden	8.9	8.2 |	8.2	9.1	8.9	9.2	9.9	9.6
United Kingdom	5.6	5.9 |	7.0	8.2	8.5	8.8	9.8	9.6
EU27 (unweighted)	**..**	**..**	**7.3**	**8.3**	**8.2**	**8.4**	**9.2**	**9.0**[4]
EU27 (weighted)[1]	**..**	**..**	**8.6**	**9.5**	**9.4**	**9.6**	**10.4**	**10.3**
Croatia	..	..	7.8	7.0	7.5	7.8	7.8	7.8
FYR of Macedonia	..	..	8.8	8.1	6.9	6.8	6.9	7.1
Iceland	6.3	7.8	9.5	9.4	9.1	9.1	9.6	9.3
Montenegro	..	..	7.9	9.1	7.8	8.0	9.4	9.1
Norway	7.0	7.6 |	8.4 |	9.0	8.7	8.6	9.8	9.4
Serbia	..	..	7.4	9.1	10.4	10.4	10.5	10.4
Switzerland	7.4	8.2 |	10.2	11.2	10.6	10.7	11.4	11.4
Turkey	2.4	2.7 |	4.9	5.4	6.0	6.1	..	..

| Break in series.

1. The weighted average is calculated based on total health spending divided by total GDP across the 27 EU member states.
2. Excluding investment.
3. Data for 1990 refers to 1991.
4. The average is calculated on the most recent data available.

Source: OECD Health Data 2012; Eurostat Statistics Database; WHO Global Health Expenditure Database.

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