Health at a Glance 2011

OECD INDICATORS

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Foreword

This 2011 edition of Health at a Glance: OECD Indicators *presents the most recent comparable data on key indicators of health and health systems across OECD countries. For the first time, it features a chapter on long-term care.*

This edition presents data for all 34 OECD member countries, including the four new member countries: Chile, Estonia, Israel and Slovenia. Where possible, it also reports comparable data for Brazil, China, India, Indonesia, the Russian Federation, and South Africa, as major non-OECD economies.

The production of Health at a Glance *would not have been possible without the contribution of OECD Health Data National Correspondents, Health Accounts Experts, and Health Care Quality Indicators Experts. The OECD gratefully acknowledges their effort in supplying most of the data and qualitative information contained in this publication. The OECD also acknowledges the contribution of other international organisations, especially the World Health Organization, the World Bank and Eurostat, for sharing some of the data presented here, and the European Commission for supporting data development.*

This publication 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 Michael Schoenstein, Gaëlle Balestat and Rebecca Bennetts; Chapter 4 by Gaétan Lafortune and Gaëlle Balestat; Chapter 5 by Gerrard Abi-Aad, Vladimir Stevanovic, Rie Fujisawa and Niek Klazinga; Chapter 6 by Michael de Looper and Marion Devaux (with a contribution from Lothar Janssen of the German Federal Ministry of Health); Chapter 7 by David Morgan, Rebecca Bennetts and Roberto Astolfi; and Chapter 8 by Jérôme Mercier, Margarita Xydia-Charmanta and Francesca Colombo. Statistical support was provided by Nelly Biondi. This publication benefited from comments and suggestions by Valérie Paris and Mark Pearson.

OECD 50th Anniversary

Measuring Progress in Health in OECD Countries over the Past Fifty Years

Work on health at the OECD began in the early 1980s, as part of an examination of the strong growth in health expenditure in the prior decade. In the 1980s and the 1990s, this work focused largely on building a robust database that could be used for comparative analyses of health systems, beginning with comparable data on health spending. This developmental work led to the release of the first version of the OECD manual *A System of Health Accounts* in 2000. In the ten years since the launch of the *OECD Health Project* in 2001, OECD work has broadened to address some of the main challenges that policy makers face to improve the performance of their countries' health systems (see box on next page).

As work on both health data and health policy has expanded, so has co-operation with other international organisations, in particular the World Health Organization (WHO) and the European Commission. A first framework of co-operation was signed between the OECD Secretary-General and the WHO Director-General in 1999, and this agreement was further extended in 2005 to cover not only statistical work but also analytical work related to the financing and delivery of health care services. At the end of 2005, the OECD, WHO and Eurostat (the European statistical agency) launched a first joint data collection based on the work already undertaken for *A System of Health Accounts*, to improve the availability and comparability of data on health expenditure and financing. Building on this success, a new joint collection between the three organisations was launched in 2010 to gather comparable data on non-monetary health care statistics. This strong collaboration avoids duplication of work and ensures synergies between the three organisations.

The *OECD Health Data* database, the main source for this publication, has been built up over the past 30 years in close co-operation with officials from all OECD countries and other international organisations. It provides a unique source of information to compare the evolution of health and health systems across OECD countries, with some time series spanning the whole 50-year period since the Organisation's foundation.

Looking back at the evolution of health and health systems since the OECD was created in 1961, three major trends stand out:

1. The remarkable gains in life expectancy.
2. The changing nature of risk factors to health.
3. The steady growth in health spending, which has exceeded GDP growth by a substantial amount.

Key events related to OECD work on health

1961: Creation of the OECD as a successor to the Organisation for European Economic Co-operation.

1980: OECD Conference on Social Policies calls for more analysis on health expenditure growth, leading to the beginning of OECD work on health under the Working Party on Social Policy.

1985: First OECD report on health, *Measuring Health Care, 1960-1983: Expenditure, Costs and Performance* (including the first paper edition of the *OECD Health Database*).

1991: First electronic edition of *OECD Health Data*.

1999: First OECD/WHO *Framework for Co-operation*.

2000: Release of OECD manual *A System of Health Accounts* to improve the comparability of data on health expenditure and financing.

2001: Launch of the *OECD Health Project* to address key policy challenges in improving the performance of OECD health systems.

2001: Creation of *OECD Group on Health* to oversee the *OECD Health Project* (the name and mandate of this group was changed in 2006 to the *OECD Health Committee*).

2001: First edition of *Health at a Glance* to present key indicators from the database in a user-friendly format.

2003: Launch of *OECD Health Care Quality Indicators (HCQI) project* to develop a set of indicators measuring and comparing quality of care across countries.

2004: First *OECD Health Ministerial Meeting* in Paris to discuss the main findings from the *OECD Health Project*. Release of publication *Towards High-Performing Health Systems*, along with a series of policy studies.

2005: Renewal of the *OECD/WHO Framework for Co-operation*, extending the co-operation beyond statistical work to include analysis of health systems issues related to financing, human resources and efficiency.

2005: First annual OECD, WHO and Eurostat *Joint Health Accounts Questionnaire* to increase the availability and comparability of data on health expenditure based on *A System of Health Accounts*.

2010: New OECD, WHO (European region) and Eurostat *Joint Questionnaire on non-monetary health care statistics* to improve availability and comparability of data on health workforce and other resources.

2010: Release of editions of *Health at a Glance* covering European and Asia/Pacific regions.

2010: Release of first OECD report on prevention, *Obesity and the Economics of Prevention – Fit Not Fat*, identifying trends in obesity and cost-effective interventions to address the obesity epidemic.

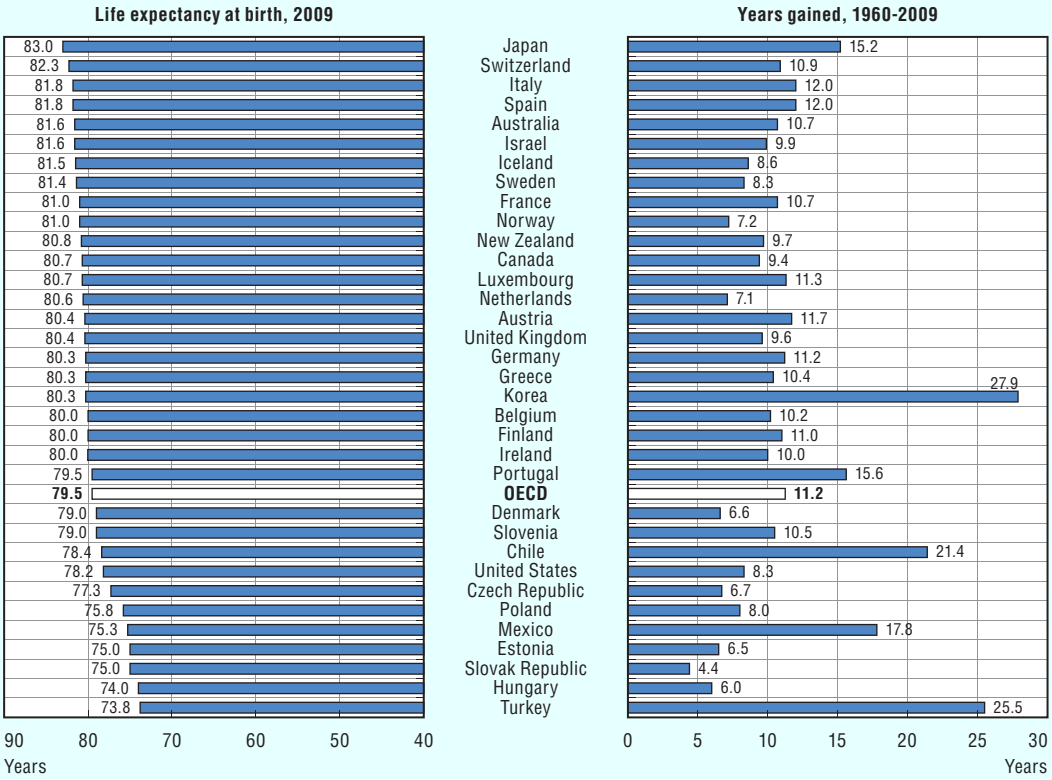
2010: Second *OECD Health Ministerial Meeting* in Paris to discuss health system priorities in the aftermath of the economic crisis. Release of first HCQI publication *Improving Value in Health Care: Measuring Quality*, and a series of policy studies in the publication *Value for Money in Health Spending*.

2011: Second edition of the manual *A System of Health Accounts* released jointly by OECD, WHO and Eurostat to promote greater comparability in health accounting systems in developed and developing countries.

Remarkable gains in life expectancy

The health of populations in OECD countries has improved greatly over the past 50 years, with women and men living longer than ever before. Since 1960, life expectancy has increased on average across OECD countries by more than 11 years, reaching nearly 80 years in 2009. The increase has been particularly noticeable in those OECD countries that started with relatively low levels in 1960, such as Korea where life expectancy has increased by a remarkable 28 years between 1960 and 2009. There have also been huge gains in life expectancy in Turkey and Mexico as well as in Chile, one of the countries that has recently joined the OECD. Japan has also achieved large gains and is now leading OECD countries, with a life expectancy of 83 years. But many other countries are close behind. In 2000, only 2 OECD countries had a total life expectancy of 80 years or more. By 2009, 22 countries had reached this milestone.

Life expectancy at birth, 2009 (or nearest year available), and years gained since 1960



Information on data for Israel: *http://dx.doi.org/10.1787/888932315602.*

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523177

These gains in life expectancy reflect large declines in mortality at all ages. Infant mortality rates have declined sharply in all countries. Deaths from cardiovascular diseases (comprising mostly heart attack and stroke) have also fallen dramatically. Although cardiovascular diseases remain the leading cause of death in OECD countries, mortality rates have been cut by more than half since 1960. Falls in important risk factors for heart and cerebrovascular diseases, including smoking, combined with improvements in medical treatment, have played a major role in reducing cardiovascular mortality rates.

The gender gap in life expectancy was 5.5 years on average across OECD countries in 2009, with average life expectancies reaching 82.2 years for women compared with 76.7 years for men. While the gender gap tended to widen in the 1960s and the 1970s, since the 1980s it has narrowed in most OECD countries because of higher gains in longevity for men. This can be attributed at least partly to the narrowing of differences in risk-increasing behaviours such as smoking, accompanied by sharp reductions in mortality rates from cardiovascular diseases among men.

There have also been large gains in life expectancy at age 65. Women in OECD countries can now expect to live an additional 20 years after 65 (up from 15 years in 1960), while men can expect to live another 17 years (up from 13 years in 1960). 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.

The changing nature of risk factors to health in OECD countries

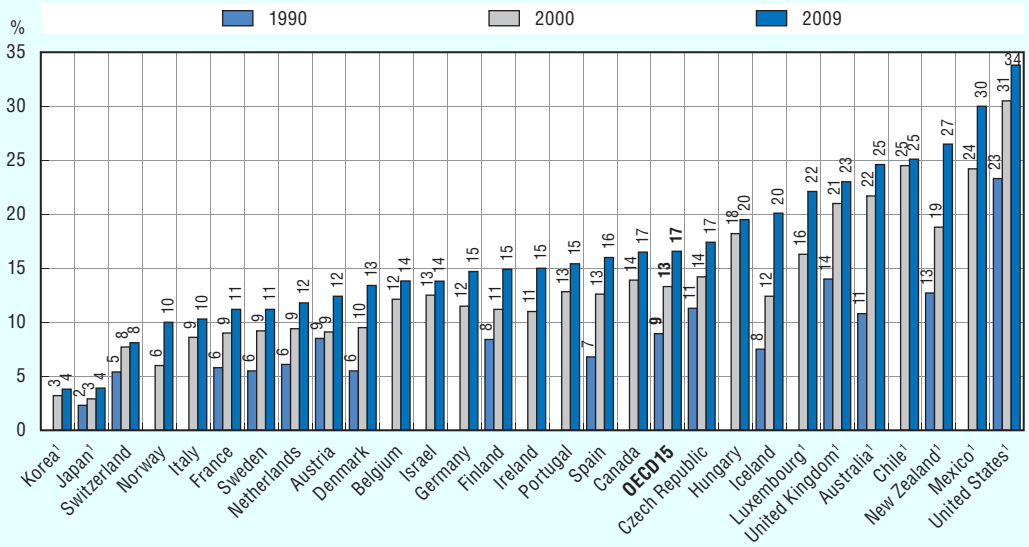
Although some of the gains in longevity can be explained by a reduction in important risk factors to health, much of the burden of diseases in OECD countries nowadays is linked to lifestyle factors, with tobacco smoking, alcohol consumption, obesity, unhealthy diet and lack of physical activity being largely responsible. People who live a physically active life, do not smoke, drink alcohol in moderate quantities, and eat plenty of fruit and vegetables have a risk of death in a given period that is less than one-fourth of those who have invariably unhealthy habits (Sassi, 2010).

Many OECD countries have achieved remarkable progress in reducing tobacco consumption over the past decades, although it still remains a leading cause of early death and hence an important public health issue. Much of this decline can be attributed to policies promoting public awareness campaigns, advertising bans and increased taxation. In many OECD countries, smoking rates among adults have been cut by more than half since the 1960s, from over 40% to less than 20% now. In both Canada and the United States, smoking rates fell from 42% in 1965 to 16% in 2009.

Progress has been mixed concerning alcohol consumption. In many OECD countries, consumption has fallen markedly since 1980, with curbs on advertising, sales restrictions and taxation proving to be effective measures. On the other hand, consumption has risen in some countries, notably in some Nordic countries, the United Kingdom and Ireland. The worrying trend in these and other countries is the consumption pattern among younger people, with the practice of heavy episodic drinking ("binge drinking") increasing in recent years. Heavy alcohol consumption has considerable impacts on health, as well as health care and social costs. Causes of death directly or indirectly attributable to alcohol consumption can include car accidents, violence and suicides, while diseases made more likely by alcohol include cardiovascular diseases, cancers of the mouth and oesophagus, and cirrhosis of the liver.

The alarming rise in obesity rates has risen at the top of the public health policy agenda in recent decades, not only in OECD countries, but increasingly in developing countries. Obesity is a key risk factor for numerous chronic conditions. Research shows that severely obese people die 8-10 years earlier than those of normal weight, a value similar to that for smokers. Obesity rates have doubled or even tripled in many countries since 1980, and in more than half of OECD countries, 50% or more of the population is now overweight, if not obese. The obesity rate among the adult population is the highest in the United States, having risen from 15% in 1980 to 34% in 2008. Japan and Korea have the lowest rates, although obesity is also rising in these two countries.

Increasing obesity rates among the adult population in OECD countries, 1990, 2000 and 2009 (or nearest years)



Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

1. Data are based on measurements rather than self-reported height and weight.

Source: OECD Health Data 2011.

StatLink *http://dx.doi.org/10.1787/888932523196*

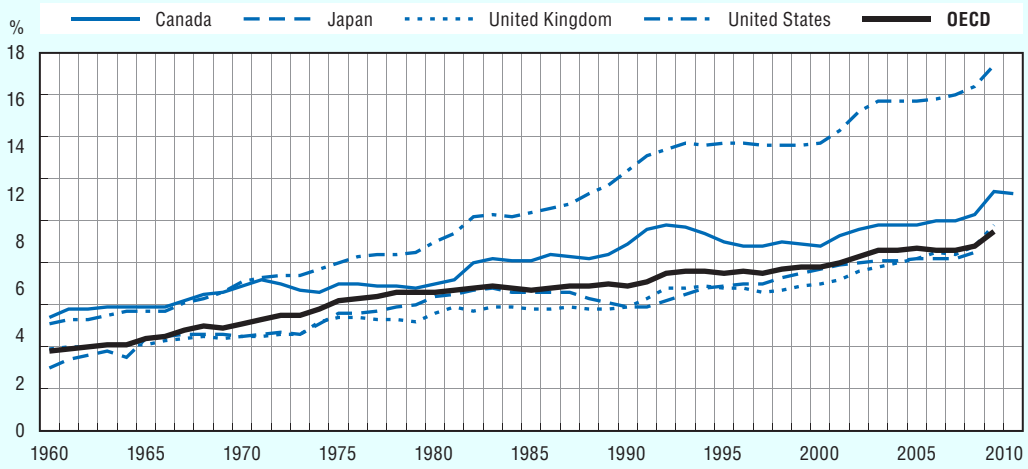
The obesity epidemic is the result of multiple and interacting dynamics, which have progressively led to lasting changes in people's lifestyles in relation to nutrition and physical activity. Many OECD governments are now intensifying their efforts to promote a culture of healthy eating and active living, with a large majority adopting initiatives aimed at school-age children. A recent OECD report found that interventions aimed at tackling obesity in at least three areas – health education and promotion, regulation and fiscal measures, and counselling in primary care – are all effective in improving health and longevity and have favourable cost-effectiveness ratios compared with scenarios in which chronic diseases are treated only as they emerge. When multiple interventions are combined in a strategy that targets different groups and determinants of obesity simultaneously, overall health gains can be significantly enhanced without any loss in cost-effectiveness (Sassi, 2010).

The steady growth in health spending

A third important trend observed over the past 50 years among health systems in OECD countries has been the steady rise in health spending, which has tended to grow faster than GDP. In 1960, health spending accounted for under 4% of GDP on average across OECD countries. By 2009, this had risen to 9.6%, and in a dozen countries health spending accounted for over 10% of GDP. The health spending share of GDP grew particularly rapidly in the United States, rising from about 5% in 1960 to over 17% in 2009, which is 5 percentage points more than in the next two highest countries, the Netherlands and France, which allocated 12% and 11.8% respectively.

Health spending per capita has also grown rapidly over the past few decades, at a rate of 6.1% per year in real terms on average across OECD countries during the 1970s, falling to 3.3% per year in the 1980s, then up to 3.7% in the 1990s, and 4.0% between 2000 and 2009. The rate of growth of health spending has consistently exceeded GDP growth in each and

Health expenditure as a share of GDP, 1960-2009, selected OECD countries



Source: OECD Health Data 2011.

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every decade. But it has varied across countries. In the United States, health expenditure has increased faster than in all other high-income OECD countries since 1970, increasing five-fold in real terms, even taking account population growth.

In many countries, the health spending share of GDP has tended to rise strongly during economic recessions, and then to stabilise or decline only slightly during periods of economic expansion. Looking back at the recession of the early 1990s, some countries such as Canada and Finland substantially reduced public expenditure on health in order to reduce their budgetary deficits, leading to a noticeable reduction in the health spending share of GDP for a few years. But these reductions in public spending on health often proved to be short-lived and after a short period of cost-containment, growing supply and demand of health services led to a revival of health expenditure growth which exceeded GDP growth.

The public sector is the main source of health financing in all OECD countries, except in Chile, Mexico and the United States. The public share of health spending was 72% of total health expenditure on average across OECD countries in 2009, a share that has been relatively stable over the past 20 years. However, there has been a convergence of the public share of health spending among OECD countries in recent decades. Many of those countries that had a relatively high public share in the early 1990s, such as Poland and Hungary, have decreased their share, while other countries which historically had a relatively low level (*e.g.* Portugal, Turkey) have increased their public share, reflecting health system reforms and the expansion of public health insurance coverage.

As shown in this edition of *Health at a Glance*, while there is some relationship between higher health spending per capita and higher life expectancy, the relationship tends to be less pronounced as countries spend more on health. This indicates that many other factors beyond health spending affect life expectancy. The weak correlation at high levels of health expenditure suggests that there is room to improve the efficiency of health systems to ensure that the additional money spent on health brings about measurable benefits in terms of health outcomes.

Looking ahead

Over the past three decades, the OECD has played an important role in developing and making available data and indicators to assess and compare the performance of health systems. While substantial progress has been achieved, much work is still needed to improve the comparability of data on health systems and to promote analysis to support health policy making.

In renewing its mandate in June 2011, the OECD Health Committee reaffirmed that the overarching objective of OECD work on health is to foster improvements in the performance of health systems in OECD countries and in non-OECD countries as appropriate. Following this mandate, the OECD will continue to share data, experiences and advice regarding current and emerging health issues and challenges. As the health sector represents an ever-growing share of OECD economies, measuring trends in health expenditure, how spending is allocated between prevention and care, and whether this brings about the expected benefits in terms of improved health outcomes, will become increasingly important.

In October 2011, the OECD, in collaboration with WHO and Eurostat, released the second edition of the manual *A System of Health Accounts*. This publication will help to further improve the comparability of data on health expenditure through agreed international standards. The OECD encourages co-operation among OECD countries and non-members in developing health accounts on a consistent basis. It will continue to work closely with WHO and Eurostat in administering an annual questionnaire to collect comparable data based on this accounting system.

The OECD also continues to develop and collect indicators measuring the quality of care and outcomes of health services, as part of the Health Care Quality Indicators project. The developmental work carried out under this project is crucial for filling key gaps in measuring the performance of health systems. At the same time, the OECD intends to expand its analytical work to explore the reasons for the observed variations in quality of care in OECD and partner countries, beginning with the areas of cancer and primary care.

In a context of population ageing, it will also become increasingly important to monitor the financing, delivery and quality of long-term care services across OECD countries. Building on recent work on long-term care (Colombo *et al*., 2011), the OECD is not only pursuing the collection of more comparable data about long-term care systems, but also analysing policies related to access, quality and financial sustainability of long-term care systems, and sharing best practices.

Keeping with the spirit of openness that has characterised the OECD since its inception, the Organisation is expanding its co-operation with non-member countries on issues where collaboration may be mutually beneficial. The release of European and Asia/Pacific editions of *Health at a Glance* in 2010 provided an example of such growing co-operation. The OECD aims to promote the sharing of the health data systems and the policy expertise and experience that reside in its member countries in order to foster improvements in health system performance in non-member countries as well.

Table of Contents

Introduction 16

List of Acronyms 21

1. Health Status 23

1.1. Life expectancy at birth 24
1.2. Premature mortality 26
1.3. Mortality from heart disease and stroke 28
1.4. Mortality from cancer 30
1.5. Mortality from transport accidents 32
1.6. Suicide 34
1.7. Infant mortality 36
1.8. Infant health: Low birth weight 38
1.9. Perceived health status 40
1.10. Diabetes prevalence and incidence 42
1.11. Cancer incidence 44
1.12. AIDS incidence and HIV prevalence 46

2. Non-medical Determinants of Health 49

2.1. Tobacco consumption among adults 50
2.2. Alcohol consumption among adults 52
2.3. Overweight and obesity among adults 54
2.4. Overweight and obesity among children 56

3. Health Workforce 59

3.1. Employment in the health and social sectors 60
3.2. Medical doctors 62
3.3. Medical graduates 64
3.4. Remuneration of doctors (general practitioners and specialists) 66
3.5. Gynaecologists and obstetricians, and midwives 68
3.6. Psychiatrists 70
3.7. Nurses 72
3.8. Nursing graduates 74
3.9. Remuneration of nurses 76

4. Health Care Activities 79

4.1. Consultations with doctors 80
4.2. Medical technologies 82
4.3. Hospital beds 84
4.4. Hospital discharges 86
4.5. Average length of stay in hospitals 88
4.6. Cardiac procedures (coronary angioplasty) 90

4.7. Hip and knee replacement . . . 92
4.8. Treatment of renal failure (dialysis and kidney transplants) . . . 94
4.9. Caesarean sections . . . 96
4.10. Cataract surgeries . . . 98
4.11. Pharmaceutical consumption . . . 100

5. Quality of Care . . . 103

Care for chronic conditions . . . 104
5.1. Avoidable admissions: Respiratory diseases . . . 104
5.2. Avoidable admissions: Uncontrolled diabetes . . . 106

Care for acute exacerbation of chronic conditions . . . 108
5.3. In-hospital mortality following acute myocardial infarction . . . 108
5.4. In-hospital mortality following stroke . . . 110

Patient safety . . . 112
5.5. Obstetric trauma . . . 112
5.6. Procedural or postoperative complications . . . 114

Care for mental disorders . . . 116
5.7. Unplanned hospital re-admissions for mental disorders . . . 116

Cancer care . . . 118
5.8. Screening, survival and mortality for cervical cancer . . . 118
5.9. Screening, survival and mortality for breast cancer . . . 120
5.10. Survival and mortality for colorectal cancer . . . 122

Care for communicable diseases . . . 124
5.11. Childhood vaccination programmes . . . 124
5.12. Influenza vaccination for older people . . . 126

6. Access to Care . . . 129

6.1. Unmet health care needs . . . 130
6.2. Coverage for health care . . . 132
6.3. Burden of out-of-pocket health expenditure . . . 134
6.4. Geographic distribution of doctors . . . 136
6.5. Inequalities in doctor consultations . . . 138
6.6. Inequalities in dentist consultations . . . 140
6.7. Inequalities in cancer screening . . . 142
6.8. Waiting times . . . 144

7. Health Expenditure and Financing . . . 147

7.1. Health expenditure per capita . . . 148
7.2. Health expenditure in relation to GDP . . . 150
7.3. Health expenditure by function . . . 152
7.4. Pharmaceutical expenditure . . . 154
7.5. Financing of health care . . . 156
7.6. Trade in health services (medical tourism) . . . 158

8. Long-term Care 161

8.1. Life expectancy and healthy life expectancy at age 65 162
8.2. Self-reported health and disability at age 65 164
8.3. Prevalence and economic burden of dementia 166
8.4. Recipients of long-term care 168
8.5. Informal carers 170
8.6. Long-term care workers 172
8.7. Long-term care beds in institutions and hospitals 174
8.8. Long-term care expenditure 176

Bibliography 179

Annex A. **Additional Information on Demographic and Economic Context, Health System Characteristics, and Health Expenditure and Financing** . . 190

Annex B. **Data Sources for Non-OECD Countries** 198

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Introduction

Health at a Glance 2011 presents comparisons of key indicators of health and health systems across the 34 OECD countries, as well as for some major non-OECD economies. It includes, for the first time, a special chapter on long-term care. The indicators presented in this publication have been selected on the basis of their policy relevance and data availability and comparability. The data come mainly from official national statistics, unless otherwise indicated.

Policy and economic context

The recent economic recession has resulted in a marked increase in government deficits in many countries since 2008. Many countries will need to substantially reduce their budget deficits. The extent of government spending reductions and/or tax increases needed will depend on the strength of the economic recovery and the size of the deficit and cumulative debt.

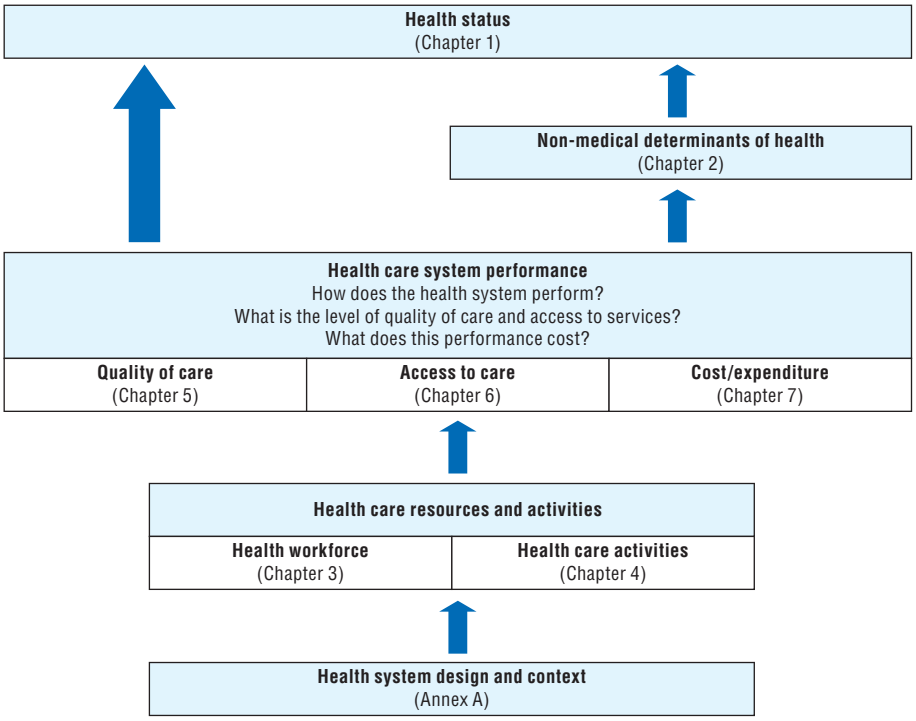
Given that health spending accounts for a high and growing share of public budgets, it will be hard to protect it from any overall effort to control public spending following the recession. The extent to which public spending on health may be affected will depend on the relative priority allocated to health. It will also depend on the extent to which public spending on health brings demonstrated benefits in terms of better health outcomes. In a context of scarce public resources, there will be growing pressures on Health Ministries and health care providers to demonstrate efficiency (cost-effectiveness) in how resources are allocated and spent. Chapter 5 presents some of the progress achieved thus far in measuring quality of care and health outcomes across countries, although further effort is needed to improve data availability and comparability.

Structure of the publication

The framework underlying this publication looks at the performance of health care systems in the context of a broader view of public health (Figure 0.1). It is based on one that was endorsed for the OECD Health Care Quality Indicators project (Kelley and Hurst, 2006; Arah *et al.*, 2006).

The framework highlights that the goal of health care systems is to improve the health status of the population. Many factors influence the health status of the population, including a number that fall outside health care systems, such as the social, economic and physical environment in which people live, and individual lifestyle and behavioural factors. The performance of health care systems also contributes to the health status of the population. This performance includes several dimensions, most notably the degree of access to care and the quality of care provided.

Figure 0.1. **Conceptual framework for health system performance assessment**



Source: Adapted from Kelley and Hurst (2006).

Performance measurement also needs to take into account the financial resources required to achieve these access and quality goals. The performance of health systems depends on the people providing the services, and the training, technology and equipment that are at their disposal.

Finally, a number of factors that are related to health care system performance are presented, such as countries' demographic, economic and social context, and the design of their health systems.

Health at a Glance 2011 provides comparisons across OECD countries on each component of this framework. It is organised as follows.

Chapter 1 on *Health Status* highlights large variations across countries in life expectancy, mortality, disease incidence and other measures of population health status. The length of life and whether it is lived free of illness and disability has intrinsic value, with good health consistently ranked as one of the most valued aspects in people's lives. Good health status also has instrumental value through enhancing opportunities to participate in education, training, and the labour market.

Chapter 2 on *Non-medical Determinants of Health* focuses on modifiable lifestyles and behaviours. Many factors affect population health status, including tobacco smoking, alcohol drinking, and overweight and obesity problems. Most of these factors can be modified by supporting health and other policies.

Chapter 3 looks at the *Health Workforce*, the key actors in any health system. It provides data on the supply and remuneration of doctors and nurses in OECD countries. Trends are also presented on the number of new graduates from medical and nursing education programmes – a key determinant of current and future supply.

Chapter 4 reviews a key set of *Health Care Activities*. The chapter begins by looking at consultations with doctors, one of the most common services received by patients. It then goes on to review cross-country variations in the supply and use of diagnostic technologies such as magnetic resonance imaging (MRI) and computed tomography (CT) scanners. The hospital sector continues to absorb the largest share of health spending in OECD countries, hence a focus on the availability of hospital beds, their rate of use, the number of hospital discharges and average length of stay. The chapter also looks at variations in the use of high-volume and high-cost procedures, such as coronary angioplasty, caesarean sections and cataract surgeries. It concludes with an examination of the volume of pharmaceutical consumption, particularly the use of drugs that treat diabetes and depression, drugs that lower cholesterol, and antibiotics.

Chapter 5 examines *Quality of Care* or the degree to which care is delivered in accordance with established standards and improves health outcomes. It summarises the data collection conducted through the *OECD Health Care Quality Indicators Project*, providing comparisons on selected indicators of care for chronic conditions, mental disorders, cancers and communicable diseases. The measures include indicators of *process* of care that are recommended for certain population or patient groups to maximise desired outcomes, and key *outcomes* measures such as survival rates following heart attack, stroke and cancer. For the first time, the chapter also includes a set of indicators on patient safety.

Chapter 6 on *Access to Care* aims to gauge whether OECD countries are meeting their stated health policy goal of ensuring adequate access to essential health care services on the basis of individual need. It begins with a review of self-reported unmet needs for medical and dental care, as a broad measure of perceived access problems. This subjective measure is complemented by more objective indicators of *financial* access such as the degree of public or private health insurance coverage and the burden of out-of-pocket payments. *Geographic* access to care follows, here measured by the "density" of doctors in different regions within each country. Another approach is to measure inequalities among different socio-economic groups in their use of health services, taking into account differences in need. Three indicators look at the use of doctors and dentists and at screening for cancer by income groups. The final indicator relates to *timely* access to care and considers variations in waiting times to see a doctor (whether a GP or a specialist), and to obtain an elective surgery.

Chapter 7 on *Health Expenditure and Financing* compares how much OECD countries spend on health, both on a per capita basis and in relation to GDP. As well as indicators of total spending, the chapter provides an analysis of the different types of health services and goods consumed across OECD countries, including a separate focus on pharmaceuticals. Along with the allocation of health care spending, the chapter also looks at how these health services and goods are paid for in different countries (*i.e.* the mix between public funding, private health insurance where it exists, and out-of-pocket payments by patients). Lastly, with the growth in medical tourism and international trade in health services, current levels and trends are examined, in the light of efforts to improve data availability.

Chapter 8 is a special chapter on *Long-term Care*, building on a recent OECD project which focussed particularly on the long-term care workforce and the financing of services (Colombo *et al.*, 2011). Indicators on life expectancy and life expectancy in good health at 65, self-reported health and disability status and dementia prevalence provide a context for the proportion of the older population who may be in need of care. These are complemented by an indicator on older persons receiving long-term care services at home or in institutions. Care provision, both informal and formal, is discussed through two

indicators on family carers and paid long-term care workers. The final indicator of this chapter looks at long-term care expenditure as a share of GDP and the growth rate over the past decade.

Annex A provides additional information on the demographic and economic context within which health and long-term care systems operate, as well as some key characteristics of health system financing and delivery.

Presentation of indicators

Text and figures

Each of the topics covered in the different chapters of this publication is presented over two pages. The first provides a brief commentary highlighting the key findings conveyed by the data, defines the indicator and discloses any significant national variation from the 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 is included. Where an OECD average is included in a figure, it is the unweighted average of the OECD countries presented, unless otherwise specified.

Data 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 figures. Readers should exercise particular caution when considering time trends for Germany. Data for Germany up to 1990 generally refer to the former West Germany and data for subsequent years refer to unified Germany.

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 presented in the *OECD Health Database* on OECD.Stat (*http://stats.oecd.org/index.aspx*, then choose "Health"). More information on the *OECD Health Database* is available at *www.oecd.org/health/healthdata*.

Population figures

The population figures presented in the annex and used to calculate rates per capita throughout this publication come from the OECD Historical Population Data and Projections (as of June 2011), and refer to mid-year estimates. Population estimates are subject to revision, so they may differ from the latest population figures released by the national statistical offices of OECD member countries.

Note that some countries such as France, the United Kingdom and the United States have overseas colonies, protectorates or territories. These populations are generally excluded. The calculation of GDP per capita and other economic measures may, however, be based on a different population in these countries, depending on the data coverage.

OECD country ISO codes

Australia	AUS	Japan	JPN
Austria	AUT	Korea	KOR
Belgium	BEL	Luxembourg	LUX
Canada	CAN	Mexico	MEX
Chile	CHL	Netherlands	NLD
Czech Republic	CZE	New Zealand	NZL
Denmark	DNK	Norway	NOR
Estonia	EST	Poland	POL
Finland	FIN	Portugal	PRT
France	FRA	Slovak Republic	SVK
Germany	DEU	Slovenia	SVN
Greece	GRC	Spain	ESP
Hungary	HUN	Sweden	SWE
Iceland	ISL	Switzerland	CHE
Ireland	IRL	Turkey	TUR
Israel	ISR	United Kingdom	GBR
Italy	ITA	United States	USA

Other major economy ISO codes

Brazil	BRA	Indonesia	IDN
China	CHN	Russian Federation	RUS
India	IND	South Africa	ZAF

List of Acronyms

AIDS	Acquired immunodeficiency syndrome
ALOS	Average length of stay
AMI	Acute myocardial infarction
ATC	Anatomic-therapeutic classification
BMI	Body mass index
CAD	Coronary artery disease
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
DDD	Defined daily dose
ESRF	End-stage renal failure
EU-SILC	European Union Statistics on Income and Living Conditions survey
GDP	Gross domestic product
GP	General practitioner
HCQI	Health Care Quality Indicators (OECD Project)
HIV	Human immunodeficiency virus
ICHA	International Classification for Health Accounts
IHD	Ischemic heart disease
MRI	Magnetic resonance imaging
PPP	Purchasing power parities
PSI	Patient safety indicators
PYLL	Potential years of life lost
SHA	System of Health Accounts
SIDS	Sudden infant death syndrome

ESS

1. HEALTH STATUS

1.1. Life expectancy at birth

1.2. Premature mortality

1.3. Mortality from heart disease and stroke

1.4. Mortality from cancer

1.5. Mortality from transport accidents

1.6. Suicide

1.7. Infant mortality

1.8. Infant health: Low birth weight

1.9. Perceived health status

1.10. Diabetes prevalence and incidence

1.11. Cancer incidence

1.12. AIDS incidence and HIV prevalence

1.1. Life expectancy at birth

Life expectancy at birth continues to increase remarkably in OECD countries, reflecting sharp 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, and greater access to quality health services. Other factors such as better nutrition, sanitation and housing also play a role, particularly in countries with emerging economies (OECD, 2004a).

On average across OECD countries, life expectancy at birth for the whole population reached 79.5 years in 2009, a gain of more than 11 years since 1960 (Figure 1.1.1). Japan leads a large group (including almost two-thirds of the 34 OECD countries) in which life expectancy at birth is currently 80 years or more. A second group, including Portugal, the United States and a number of central and eastern European countries have a life expectancy of between 75 and 80 years. Life expectancy among OECD countries was lowest in Turkey and Hungary. However, while life expectancy in Hungary has increased only modestly since 1960, it has increased rapidly in Turkey, so that it is quickly approaching the OECD average (OECD and World Bank, 2008).

Nearly all OECD and emerging countries have experienced large gains in life expectancy over the past 50 years. Life expectancy at birth in Korea, Turkey and Chile has increased by 20 years or more over the period 1960-2009. Mexico, Portugal and Japan, as well as emerging countries such as Indonesia, China, India and Brazil also show strong gains. South Africa and the Russian Federation are still characterised by high mortality rates and in terms of length of life, they are well below the OECD average.

The gender gap in life expectancy stood at 5.5 years on average across OECD countries in 2009, with life expectancy reaching 76.7 years among men and 82.2 years among women. While the gender gap in life expectancy increased substantially in many countries during the 1960s and the 1970s, it narrowed during the past 30 years, reflecting higher gains in life expectancy among men than among women. This can be attributed at least partly to the narrowing of differences in risk-increasing behaviours, such as smoking, between men and women, accompanied by sharp reductions in mortality rates from cardiovascular diseases among men.

Higher national income (as measured by GDP per capita) is generally associated with higher life expectancy at birth, although the relationship is less pronounced at the highest levels of national income (Figure 1.1.2). There are also notable differences in life expectancy between countries with similar income per capita. For example, Japan and Israel have higher, and the United States, Denmark and Hungary have lower life expectancies than would be predicted by their GDP per capita alone. High rates of mortality for some diseases at older ages, the legacy of smoking and other factors such as obesity and economic inequality have been suggested as possible reasons for the United States' poorer outcomes (Crimmins *et al.*, 2010).

Figure 1.1.3 shows the relationship between life expectancy at birth and health expenditure per capita across OECD countries. Higher health spending per capita is generally associated with higher life expectancy at birth, although this relationship tends to be less pronounced in countries with the highest health spending per capita. Japan and Spain stand out as having relatively high life expectancies, and the United States, Denmark and Hungary relatively low life expectancies, given their levels of health spending.

Variations in GDP per capita may influence *both* life expectancy and health expenditure per capita. Other factors beyond national income and total health spending are required to explain variations in life expectancy across countries.

Definition and comparability

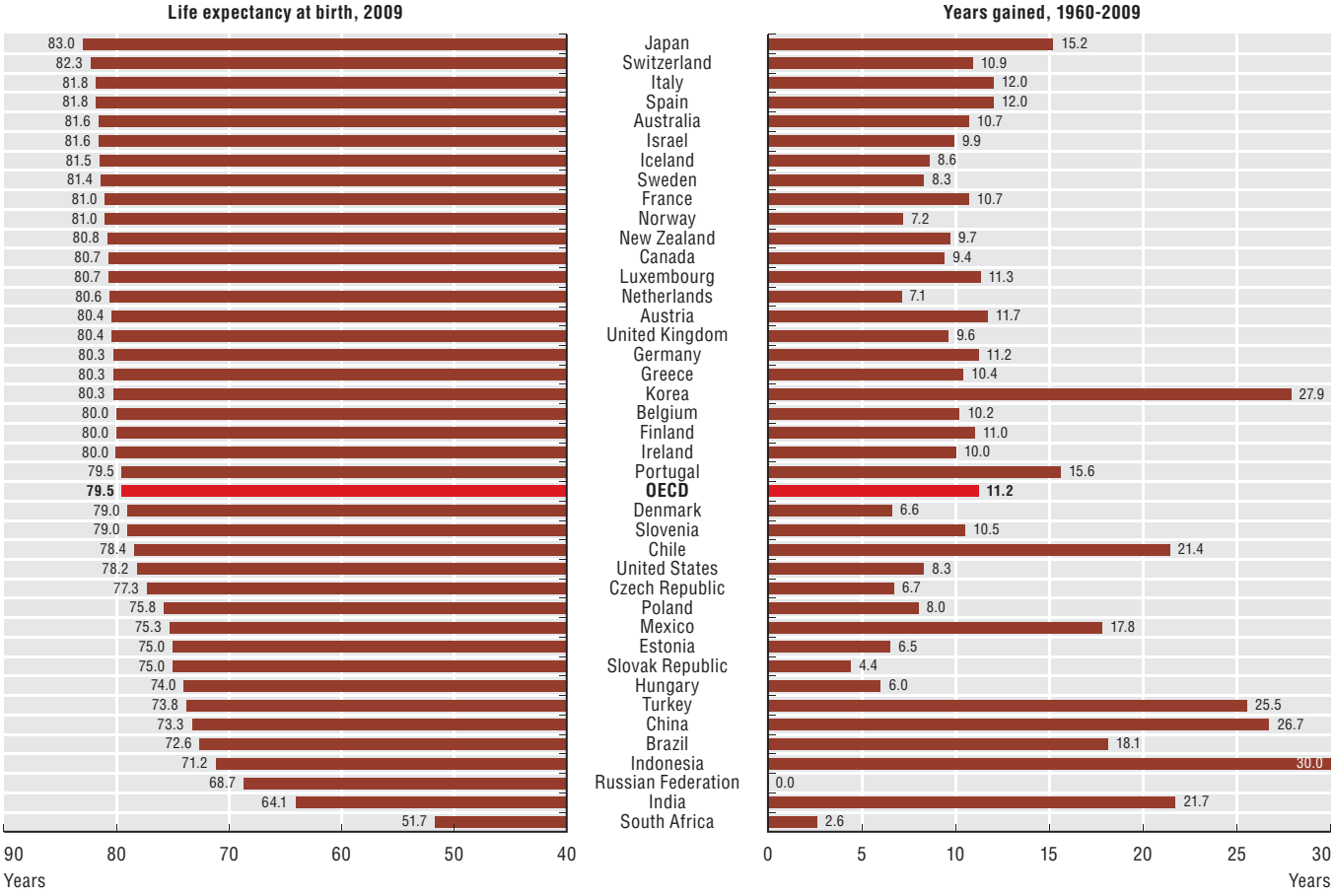
Life expectancy at birth measures how long on average a newborn can expect to live, if current death rates do not change. However, the *actual* age-specific death rate of any particular birth cohort cannot be known in advance. If rates are falling, as has been the case over the past decades in OECD countries, actual life spans will be higher than life expectancy calculated using current death rates.

The methodology used to calculate life expectancy can vary slightly between countries. This can change a country's estimates by a fraction of a year.

Life expectancy at birth for the total population is calculated by the OECD Secretariat for all OECD countries, using the unweighted average of life expectancy of men and women.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

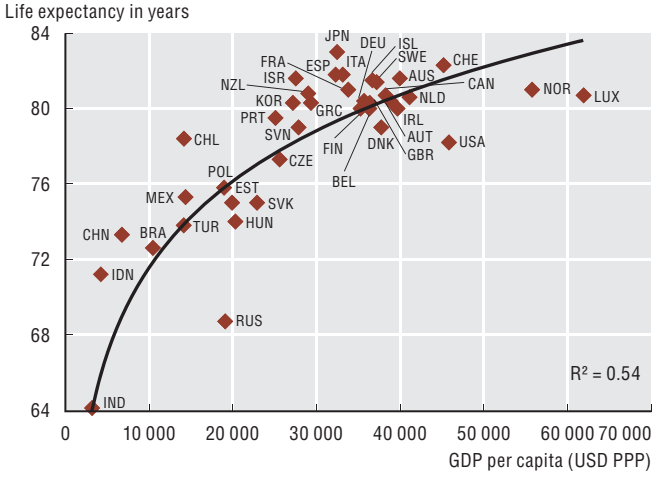
1.1.1 Life expectancy at birth, 2009 (or nearest year), and years gained since 1960



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523253

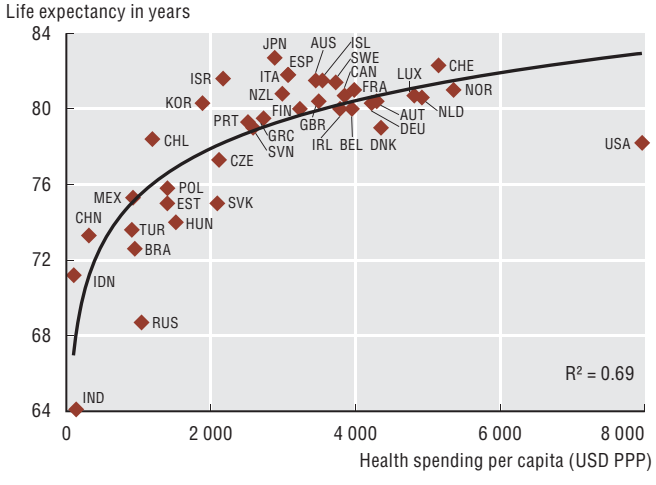
1.1.2 Life expectancy at birth and GDP per capita, 2009 (or nearest year)



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523272

1.1.3 Life expectancy at birth and health spending per capita, 2009 (or nearest year)



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523291

1.2. Premature mortality

Premature mortality, measured in terms of potential years of life lost (PYLL) before the age of 70 years, focuses on deaths among younger age groups of the population. PYLL values are heavily influenced by infant mortality and deaths from diseases and injuries affecting children and younger adults: a death at five years of age represents 65 PYLL; one at 60 years of age only ten. Premature mortality can be influenced by advances in medical technology, especially in relation to infant mortality and deaths due to heart disease, and in prevention and control measures, reducing untimely or avoidable deaths from injuries and communicable diseases. A number of other variables, such as GDP per capita, occupational status, numbers of doctors and alcohol and tobacco consumption have also been associated with reduced premature mortality (Or, 2000; Joumard *et al.*, 2008).

Rates of premature mortality are higher among males in all countries, with the OECD average in 2009 (4 689 years lost per 100 000 males) almost twice that of females (2 419). The main causes of potential years of life lost before age 70 among men are external causes including accidents and violence (29%), followed by cancer (20%) and circulatory diseases (17%). For women, the principal causes are cancer (31%), external causes (17%), and circulatory diseases (12%).

Among males, Iceland and Sweden had the lowest levels of premature mortality in 2009, and for females levels were lowest in Iceland and Luxembourg (Figure 1.2.1). In the OECD, Estonia and Mexico reported the highest premature mortality rates for males, and Mexico and Hungary for females, with levels more than double those of the country with the lowest PYLL. The rates for the United States were also high – almost 50% above the OECD average in the case of females, and 30% for males. Among US males, more than one-third (and in females, one-fifth) of these premature mortality rates can be attributed to deaths resulting from external causes, including accidents, suicide and homicide. Premature death from homicide for men in the United States is more than five times the OECD average. Rates of premature mortality are also extremely high in the Russian Federation, at over four times the OECD average for males, and three times for females.

Across OECD countries, premature mortality has been cut by more than half since 1970 (Figure 1.2.2). The decline in premature mortality was more rapid for females than for males between 1970 and the early 1990s, but since then the average rate of PYLL has been declining at the same rate for both men and women. The downward trend in infant mortality was a major factor contributing to the decline in earlier years (see Indicator 1.7 "Infant mortality"). More recently, the decline in deaths from heart disease among adults has contributed significantly to the overall reduction in premature mortality in many countries (see Indicator 1.3 "Mortality from heart disease and stroke").

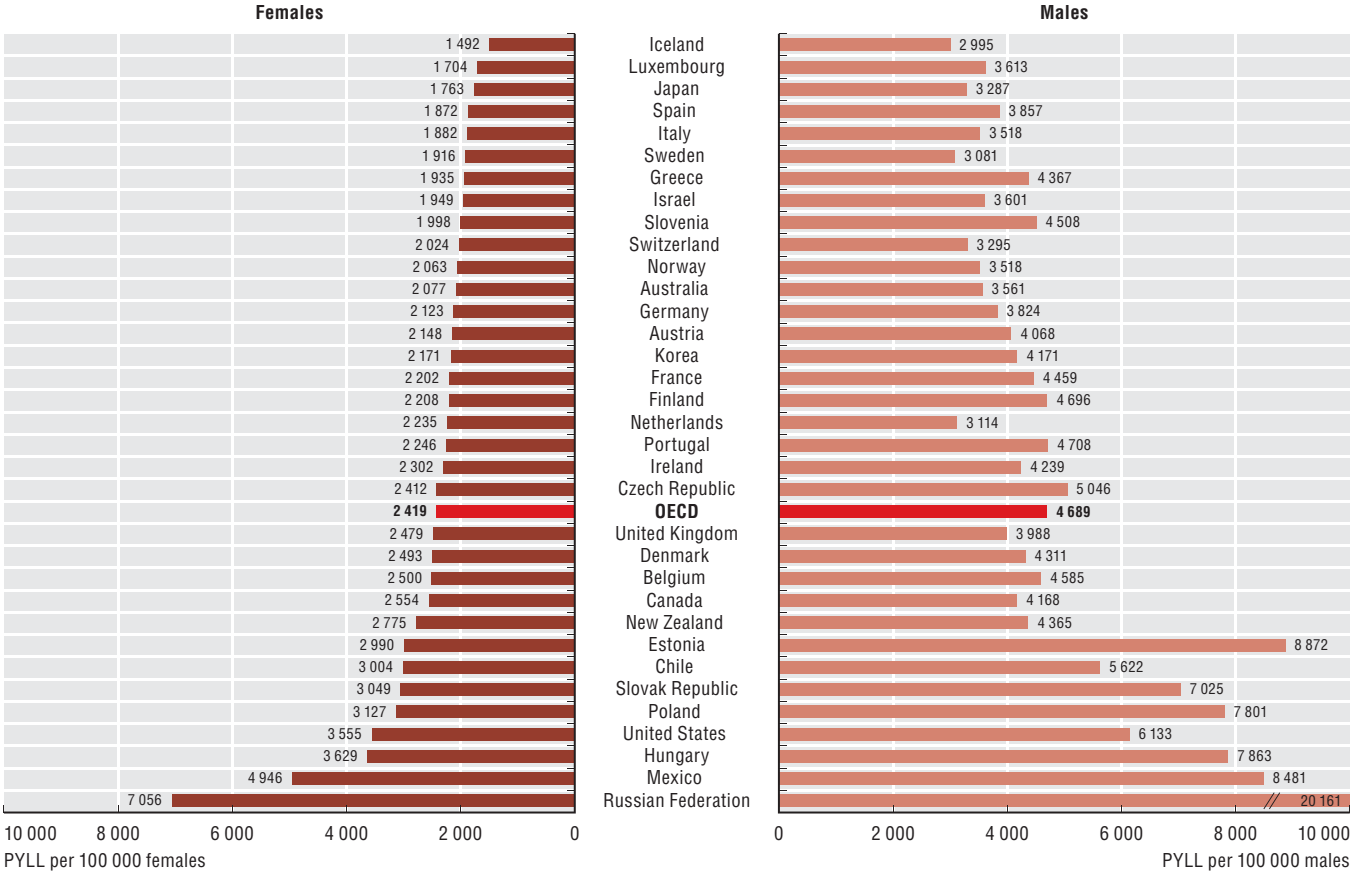
Portugal, Luxembourg and Italy have seen premature mortality rates decline rapidly among both males and females, so that they are currently less than one-third of 1970 levels. Although the rate is still high, Mexico has also seen a dramatic decline. In each case, the sharp reduction in infant mortality rates has been an important contributing factor. In contrast, premature mortality has declined more slowly in Hungary, particularly among males. This is largely attributed to persistently high levels of mortality from circulatory disease (currently twice the OECD average) and from liver disease (over three times the OECD average). The slow decline in PYLL in part reflects unhealthy lifestyles, in particular high alcohol and tobacco consumption among males in Hungary, together with Hungary's high suicide rates. Declines in premature mortality have also been slow in Poland and the United States.

Definition and comparability

Potential years of life lost (PYLL) is a summary measure of premature mortality, providing an explicit method of weighting deaths which occur at younger ages. The calculation of PYLL involves adding age-specific deaths occurring at each age and weighting them by the number of remaining unlived years up to a selected age limit, defined here as age 70. For example, a death occurring at five years of age is counted as 65 years of PYLL. The indicator is expressed per 100 000 females and males.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

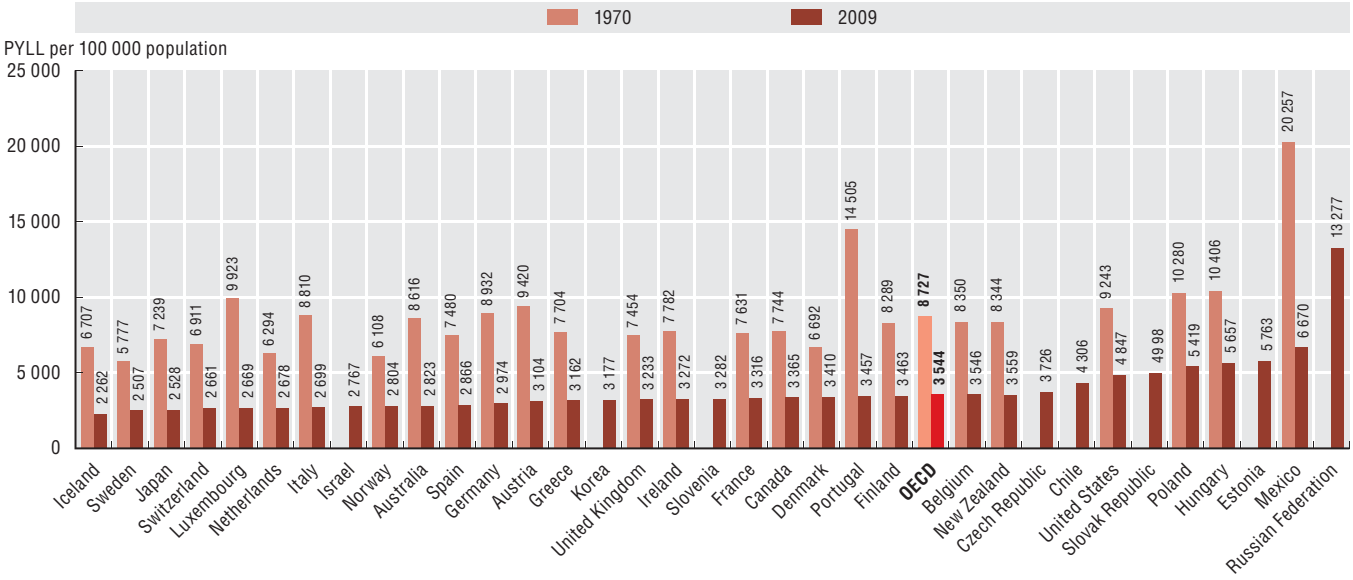
1.2.1 Potential years of life lost (PYLL), females and males, 2009 (or nearest year)



Source: *OECD Health Data 2011*; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523310

1.2.2 Reduction in potential years of life lost (PYLL), 1970-2009 (or nearest year)



Source: *OECD Health Data 2011*; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523329

1.3. Mortality from heart disease and stroke

Cardiovascular diseases are the main cause of mortality in almost all OECD countries, and accounted for 35% of all deaths in 2009. They cover a range of diseases related to the circulatory system, including ischemic heart disease (known as IHD, or heart attack) and cerebrovascular disease (or stroke). Together, IHD and stroke comprise two-thirds of all cardiovascular deaths, and between them they caused almost one-quarter of all deaths in OECD countries in 2009.

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 15% of all deaths in OECD countries in 2009. Mortality from IHD varies considerably, however (Figure 1.3.1). Central and eastern European countries report the highest IHD mortality rates; the Slovak Republic for both males and females, followed by Estonia, Hungary and the Czech Republic. IHD mortality rates are also relatively high in Finland, Poland and Ireland, far ahead of Korea and Japan, the countries with the lowest rates. There are regional patterns to the variability of IHD mortality rates. Closely following the two OECD Asian countries, the countries with the lowest IHD mortality rates are five countries located in southern Europe and the Mediterranean: France, Portugal, Spain, Israel and Italy. This lends support to the commonly held hypothesis that diet – an important underlying risk factor – explains much of the difference in IHD mortality across countries.

Death rates for IHD are much higher for men than for women (Figure 1.3.1). On average across OECD countries, IHD mortality rates in 2009 were nearly two times greater for men. The disparity was greatest in France and Luxembourg with male rates two-to-three times higher, and least in Mexico and the Czech and Slovak Republics, at 60% higher.

Since 1980, IHD mortality rates have declined in nearly all OECD countries. The decline has been most remarkable in the Netherlands, the Nordic countries (Denmark, Norway, Sweden and Iceland), Australia, the United Kingdom and Israel, with rates being cut by two-thirds or more. Declining tobacco consumption contributed significantly to reducing the incidence of IHD, and consequently to reducing mortality rates. Improvements in medical care have also contributed to reduced mortality rates (see Indicators 4.6 "Cardiac procedures" and 5.3 "In-hospital mortality following acute myocardial infarction"). A small number of countries however, including Hungary, Poland and the Slovak Republic, have seen little or no decline since 1980. The rate in Greece has declined only slightly, although it was already comparatively low in 1980. Only in Korea and Mexico have mortality rates increased.

Stroke was the underlying cause for about 8% of all deaths in OECD countries in 2009. It is a loss of brain function due to disruption of the blood supply to the brain. In addition to being an important cause of mortality, the disability burden from stroke is also substantial (Moon *et al.*, 2003). As with IHD, there are large variations in stroke mortality rates across countries (Figure 1.3.2). The rates are highest in the Slovak Republic, Hungary, Poland and the Czech Republic. They are the lowest in Israel, Switzerland, France and the United States.

Looking at trends over time, stroke mortality has decreased in all OECD countries (except Poland and the Slovak Republic) since 1980. Rates have declined by around three-quarters in Austria, Portugal and Japan. 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 5.4 "In-hospital mortality following stroke").

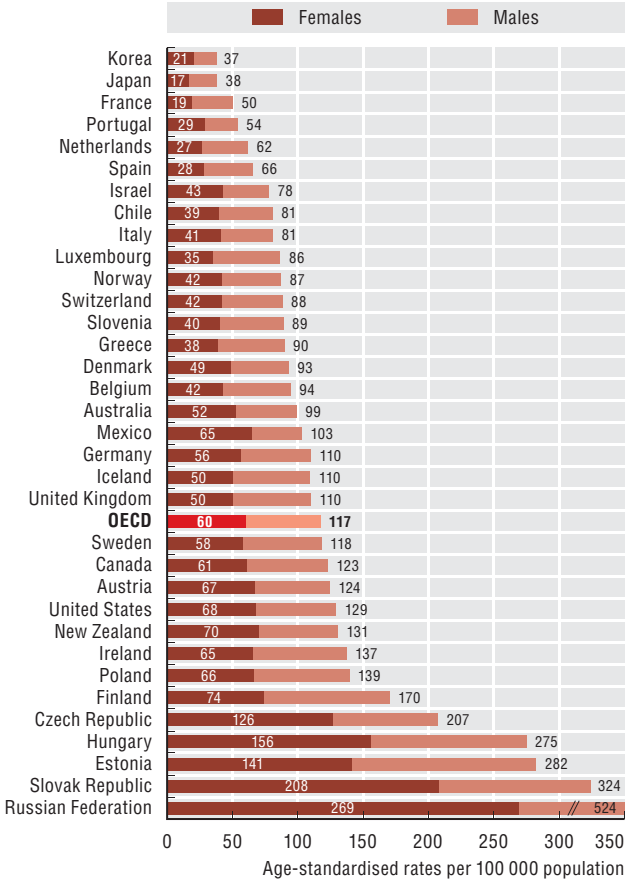
Definition and comparability

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 1980 OECD population to remove variations arising from differences in age structures across countries and over time. The source is the *WHO Mortality 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

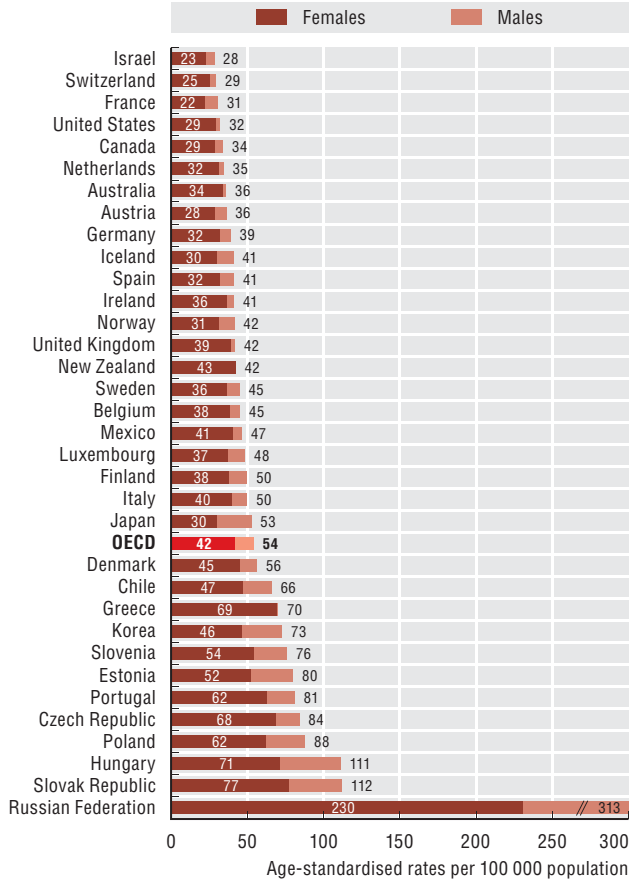
1.3.1 Ischemic heart disease, mortality rates, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523348

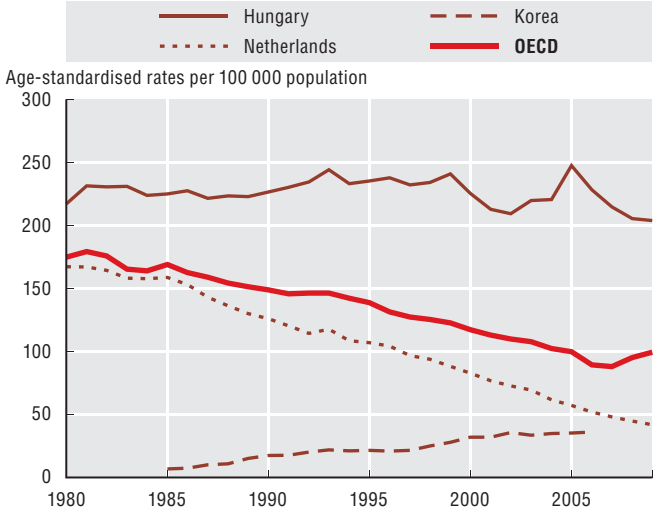
1.3.2 Stroke, mortality rates, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523367

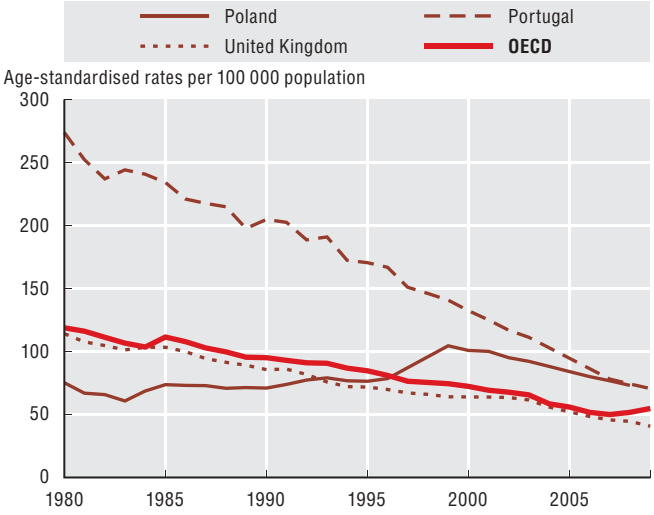
1.3.3 Trends in ischemic heart disease mortality rates, selected OECD countries, 1980-2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523386

1.3.4 Trends in stroke mortality rates, selected OECD countries, 1980-2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523405

1.4. Mortality from cancer

Cancer is the second leading cause of mortality in OECD countries after diseases of the circulatory system, accounting for 28% of all deaths on average in 2009. In 2009, cancer mortality rates were the lowest in Mexico, Finland, Japan and Switzerland. They were the highest in central and eastern European countries (Hungary, Poland, Slovenia, the Czech and Slovak Republics) and Denmark (Figure 1.4.1).

Cancer mortality rates are higher for men than for women in all countries (Figure 1.4.1). In 2009, the gender gap was particularly wide in Korea, Spain and Estonia, along with the Russian Federation, Japan and France, 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.

Three common cancers – lung, breast and prostate – are discussed in detail below. Mortality from cervical and colorectal cancer is considered further in Chapter 5.

Lung cancer is responsible for the largest number of cancer deaths among men in OECD countries, except in Sweden, Mexico and Chile. Lung cancer is also one of the main causes of cancer mortality among women. Tobacco smoking is the most important risk factor for lung cancer. In 2009, death rates from lung cancer among men were the highest in central and eastern European countries (Hungary, Poland and the Czech and Slovak Republics), Belgium, the Russian Federation, Estonia, Greece and the Netherlands (Figure 1.4.2). These are all countries where smoking rates among men are relatively high. Death rates from lung cancer among men are low in Chile, Mexico and Sweden, which, in the latter two countries, reflect smoking rates (see Indicator 2.1 "Tobacco consumption among adults").

Breast cancer is the most common form of cancer among women in all OECD countries (Ferlay *et al.*, 2010). It accounted for around 30% of cancer incidence among women, and 15% of cancer deaths in 2009. While there has been an increase in measured 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 5.9 "Screening, survival and mortality for breast cancer"). The lowest mortality rates from breast cancer are in Korea and Japan, while the highest rates are in Denmark, Belgium, Ireland and Hungary (Figure 1.4.3).

Prostate cancer has become the most commonly occurring cancer among men in many OECD countries, particularly for those aged over 65 years of age, although death rates from prostate cancer generally remain lower than for lung cancer. 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 2009 varied from lows of less than 10 per 100 000 males in Korea and Japan, to highs of more than 30 per 100 000 males in Estonia, Slovenia and Nordic countries (Denmark, Sweden and Norway) (Figure 1.4.4). 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, 2009).

Death rates from all types of cancer for males and females have declined at least slightly in most OECD countries since 1995, although the decline has been more modest than for cardiovascular diseases. The exceptions to this declining pattern are Greece, Poland, Portugal and Estonia, where cancer mortality has remained static.

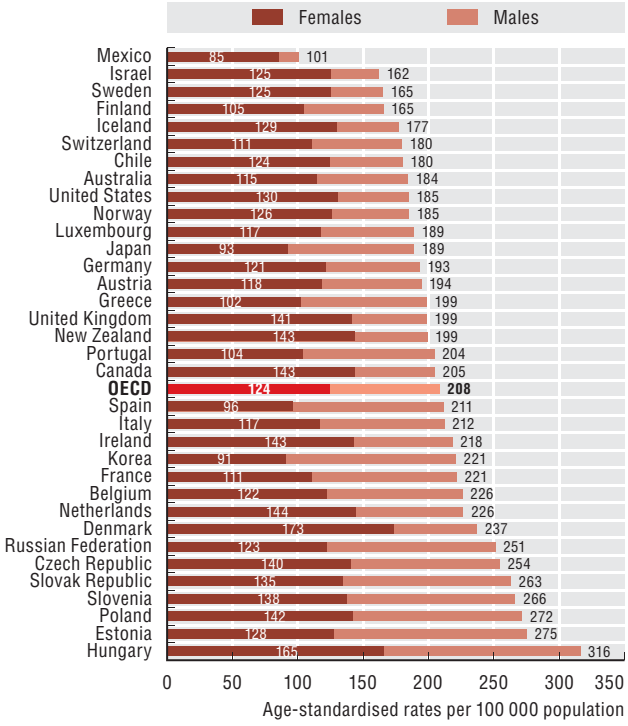
Definition and comparability

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 1980 OECD population to remove variations arising from differences in age structures across countries and over time. The source is the *WHO Mortality 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. Mathers *et al.* (2005) have provided a general assessment of the coverage, completeness and reliability of data on causes of death.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

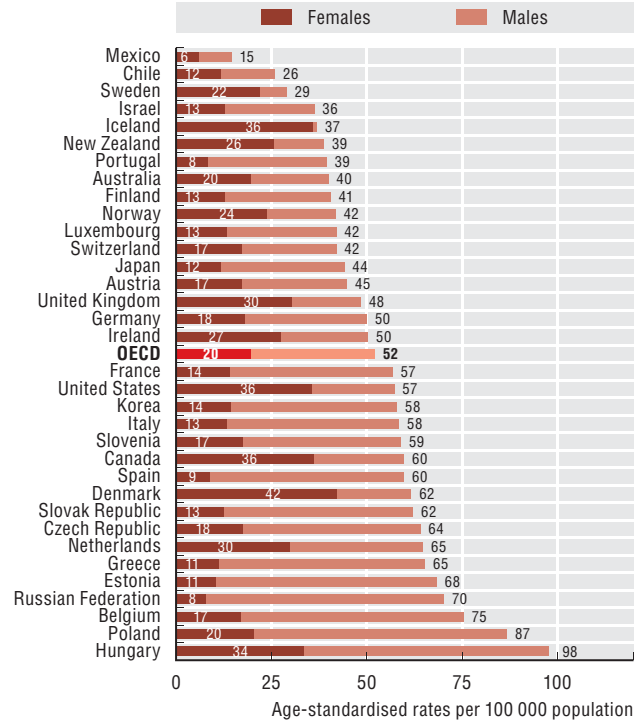
1.4.1 All cancers mortality rates, males and females, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523424

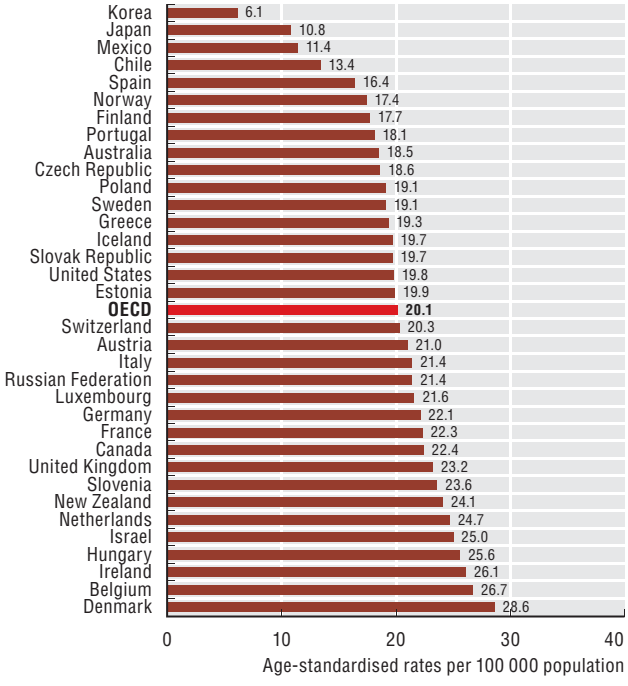
1.4.2 Lung cancer mortality rates, males and females, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523443

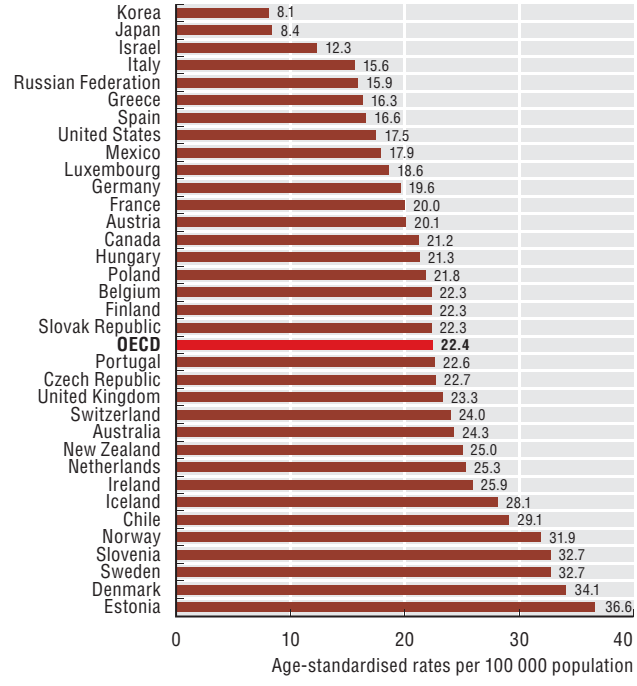
1.4.3 Breast cancer mortality rates, females, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523462

1.4.4 Prostate cancer mortality rates, males, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523481

1.5. Mortality from transport accidents

Worldwide, an estimated 1.2 million people are killed in transport accidents each year, most of which are road traffic accidents, and as many as 50 million people are injured or disabled (WHO, 2009a). In OECD countries alone transport accidents were responsible for more than 120 000 deaths in 2009, occurring most often in the United States (45 000), Mexico (17 000), Korea and Japan (7 000 each). In addition, there were 38 000 deaths in the Russian Federation.

Mortality from road accidents is the leading cause of death among children and young people – especially young men – in many countries. Most fatal traffic injuries occur in passenger vehicles, although the fatality risk for motor cycles and mopeds is highest among all modes of transport (OECD/ITF, 2011).

Besides the adverse social, physical and psychological effects, the direct and indirect financial costs of transport accidents are substantial; one estimate put these at 2% of gross national product annually in highly-motorised countries (Peden *et al.*, 2004).

Death rates were the highest in the Russian Federation in 2009, and among OECD countries, in Mexico and the United States, all in excess of 14 deaths per 100 000 population (Figure 1.5.1). They were the lowest in Iceland, the Netherlands and the United Kingdom, at four deaths per 100 000 population or less, much lower than the OECD average of 8.2. A five-fold difference exists between Iceland and Mexico, the OECD countries with the lowest and highest rates. In all countries, death rates from transport accidents are much higher for males than for females, with disparities ranging from twice as high in New Zealand to almost five times higher in Greece and Chile. On average, three times as many males than females die in transport accidents (Figure 1.5.1).

Much transport 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 halved in OECD countries since 1995 (Figure 1.5.2). Estonia, Iceland, Korea, Portugal and Japan have seen the largest declines, with a reduction of 60% or more since 1995, although the number of vehicle kilometres travelled has increased in the same period (OECD/ITF, 2010). Death rates have also declined in the United States, but at a slower pace, and therefore remain above the OECD average. In Chile and the Russian Federation, there have been significant increases in death rates from road accidents since 1995 (Figure 1.5.3).

The effects of the recent economic crisis may have had a favourable outcome on transport accident mortality. Many countries had a slight decrease or stagnation in traffic volumes, but 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, 2011).

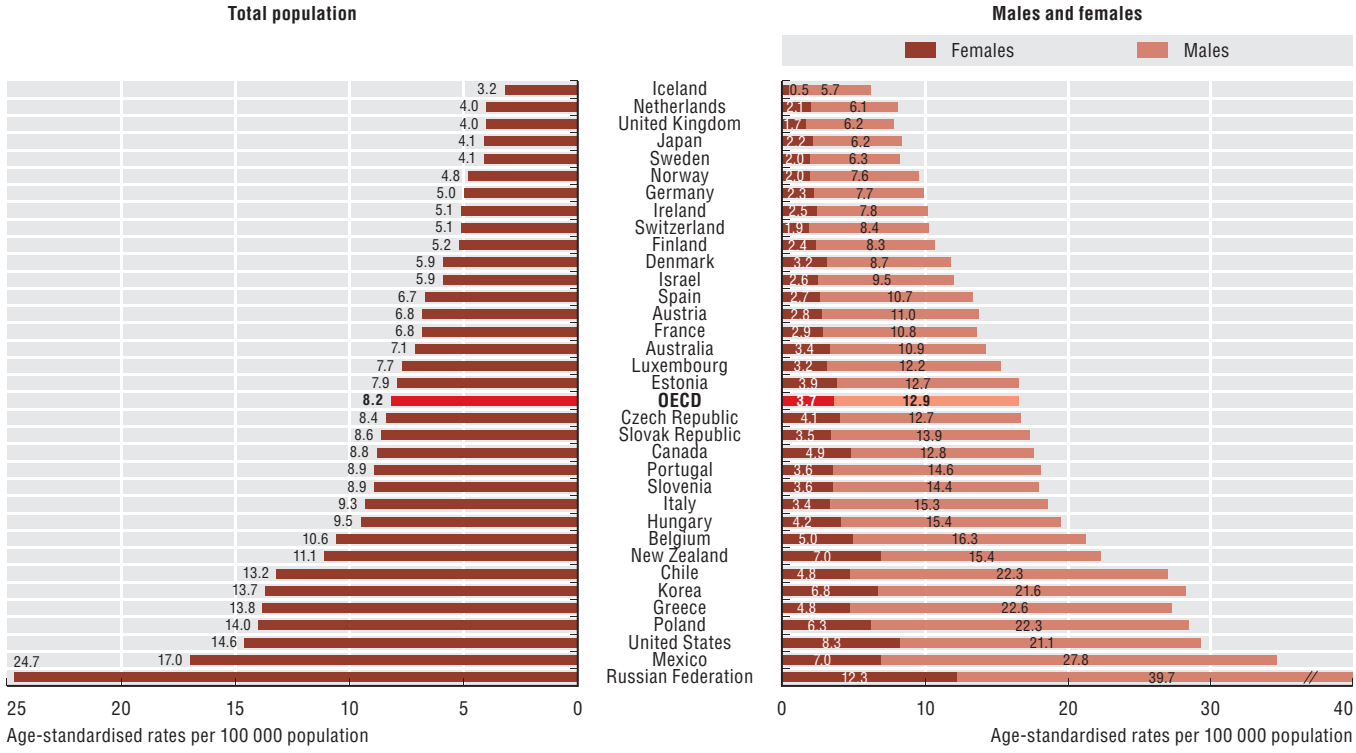
Definition and comparability

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 1980 OECD population to remove variations arising from differences in age structures across countries and over time. The source is the *WHO Mortality Database*.

Deaths from transport accidents are classified to ICD-10 codes V01-V89. Mortality rates from road traffic 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

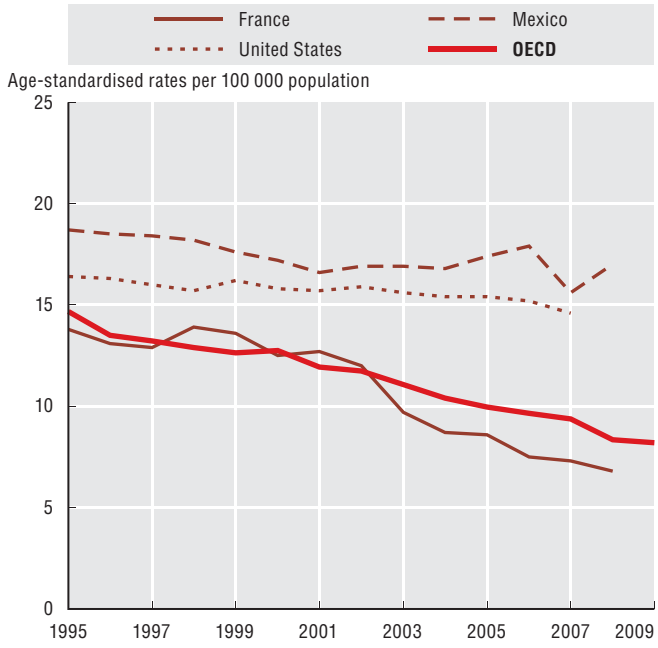
1.5.1 Transport accident mortality rates, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523500

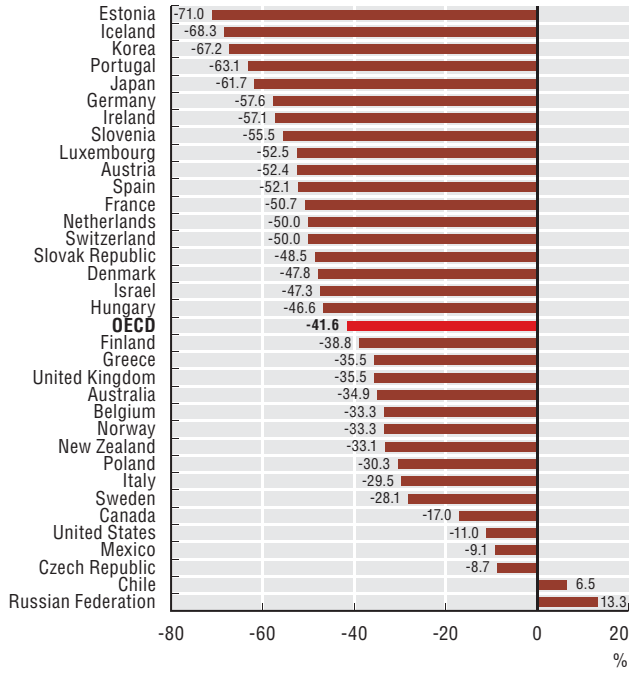
1.5.2 Trends in transport accident mortality rates, selected OECD countries, 1995-2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523519

1.5.3 Change in transport accident mortality rates, 1995-2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523538

1.6. Suicide

The intentional killing of oneself can be 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 or 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").

Intentional self-harm is a significant cause of death in many OECD countries, and there were almost 150 000 suicide deaths in 2009. Rates were lowest in southern European countries (Greece, Italy and Spain) and in Mexico and Israel, at six or fewer deaths per 100 000 population (Figure 1.6.1). They were highest in Korea, the Russian Federation, Hungary, and Japan, at more than 19 deaths per 100 000 population. There is a ten-fold difference between Korea and Greece, the countries with the highest and lowest suicide rates.

Death rates from suicide are three-to-four times greater for men than for women across OECD countries (Figure 1.6.1), a gap that has remained fairly stable over time. The exception is Korea, where women are much more likely to take their own lives, although male rates are still twice those of females. 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, less progress has been observed among younger people.

Since 1995, suicide rates have decreased in many OECD countries, with pronounced declines of close to 40% or more in Estonia, Luxembourg and Austria (Figure 1.6.2). However, death rates from suicides have increased in Korea, Chile, Japan, Mexico and Portugal, although in Mexico rates remain at low levels, and in Japan rates have been static since the late 1990s. In Korea, male suicide rates more than doubled from 17 per 100 000 in 1995 to 39 in 2009, and rates among women are the highest in the OECD, at 20 per 100 000 (Figure 1.6.3). Between 2006 and 2010, the number of persons treated for depression and bipolar disease in Korea rose sharply (increases of 17 and 29 per cent respectively), with those in low socio-economic groups more likely to be affected (HIRA, 2011). Economic downturn, weakening social integration and the erosion of the traditional family support base for the elderly have all been implicated in Korea's recent increase in suicide rates (Kwon *et al*., 2009).

Suicide is often linked with depression and the abuse of alcohol and other substances. Early detection of these psycho-social problems in high-risk groups by families and health professionals is an important part of suicide prevention campaigns, together with the provision of effective support and treatment. Many countries are promoting mental health and developing national strategies for prevention, focussing on at-risk groups (Hawton and van Heeringen, 2009). In Germany, as well as Finland and Iceland, suicide prevention programmes have been based on efforts to promote strong multisectoral collaboration and networking (NOMESCO, 2007).

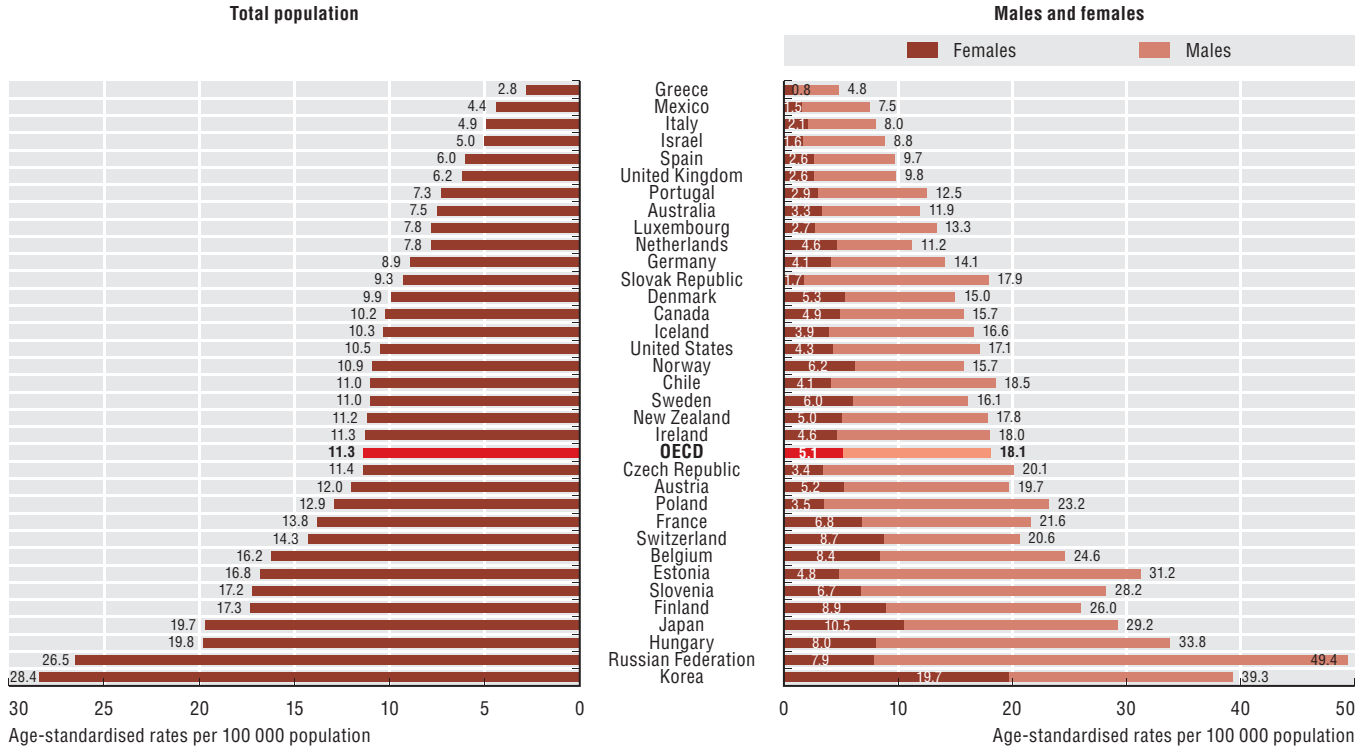
Definition and comparability

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 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 1980 OECD population to remove variations arising from differences in age structures across countries and over time. The source is the *WHO Mortality 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

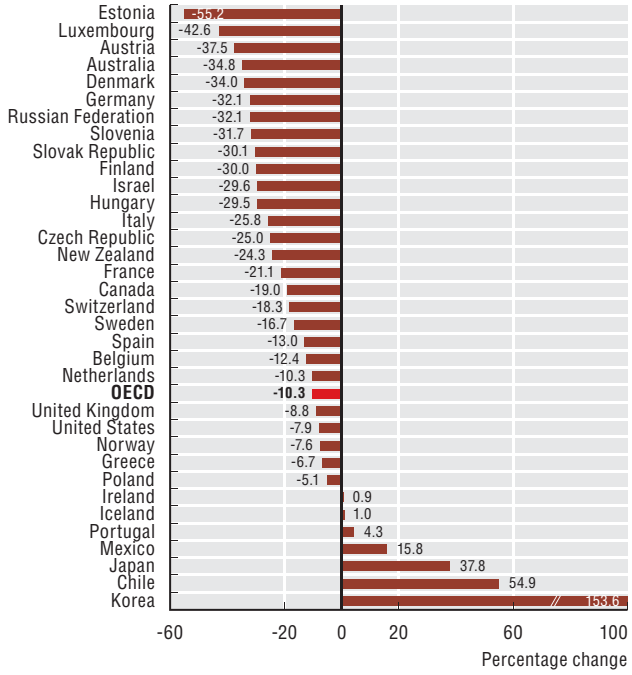
1.6.1 Suicide mortality rates, 2009 (or nearest year)



Source: *OECD Health Data 2011*; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523557

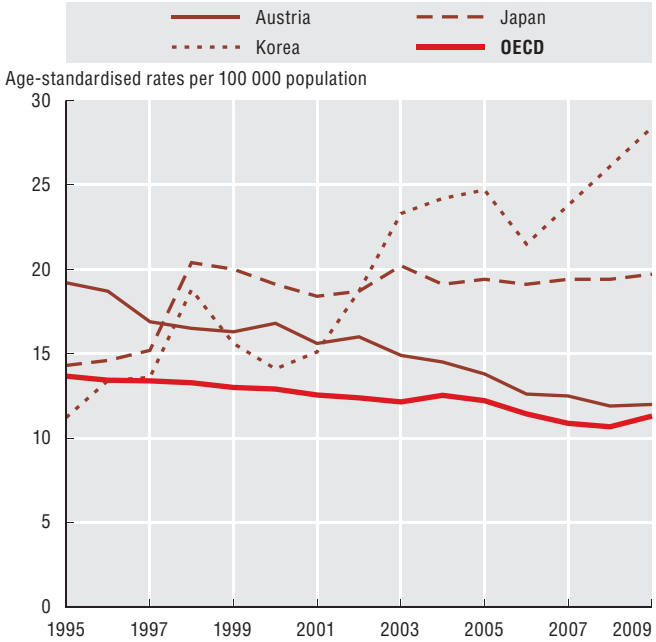
1.6.2 Change in suicide rates, 1995-2009 (or nearest year)



Source: *OECD Health Data 2011*; IS-GBE (2011).

StatLink http://dx.doi.org/10.1787/888932523576

1.6.3 Trends in suicide rates, selected OECD countries, 1995-2009



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932523595

1.7. Infant mortality

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 OECD countries, infant mortality is low and there is little difference in rates (Figure 1.7.1). A small group of OECD and emerging countries, however, have infant mortality rates above ten deaths per 1 000 live births. In 2009, rates ranged from less than three deaths per 1 000 live births in Nordic countries (Iceland, Sweden, Finland), Japan, Slovenia, Luxembourg and the Czech Republic, up to a high of 13 and 15 in Turkey and Mexico respectively. Infant mortality rates were also relatively high (six or more deaths per 1 000 live births) in the United States and in Chile.

In emerging countries (India, South Africa, Indonesia and Brazil), infant mortality rates are above 20 deaths per 1 000 live births. In India, one-in-twenty children die before their first birthday. The recent UN Commission on Information and Accountability for Women's and Children's Health has called for renewed efforts by emerging countries to accurately measure and monitor maternal and child deaths and the health expenditure committed to improving the health of mothers and babies (UN Commission, 2011).

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 a rise in multiple births linked with fertility treatments, the number of pre-term births has tended to increase (see Indicator 1.8 "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 a 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 OECD countries have achieved remarkable progress in reducing infant mortality rates from the levels of 1970, when the average was approaching 30 deaths per 1 000 live births, to the current average of 4.4 (Figure 1.7.2). This equates to a cumulative reduction of 85% since 1970. Portugal has seen its infant mortality rate reduced by nearly 7% per year on average since 1970, moving from the country with the highest rate in Europe to an infant mortality rate which is among the lowest in the OECD in 2009 (Figure 1.7.1). Large reductions in infant mortality rates have also been observed in Korea, Israel and Turkey.

The reduction in infant mortality rates has been slower in the Netherlands and the United States. At one time the infant mortality rates in the United States was well below the OECD average, but it is now above average (Figure 1.7.2). Significant differences are evident among ethnic groups in the United States, with Black or African-American women more likely to give birth to high-risk, low birthweight infants, and with an infant mortality rate more that double that for white women (12.9 *versus* 5.6 in 2006) (NCHS, 2011).

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 (Kiely *et al.*, 1995).

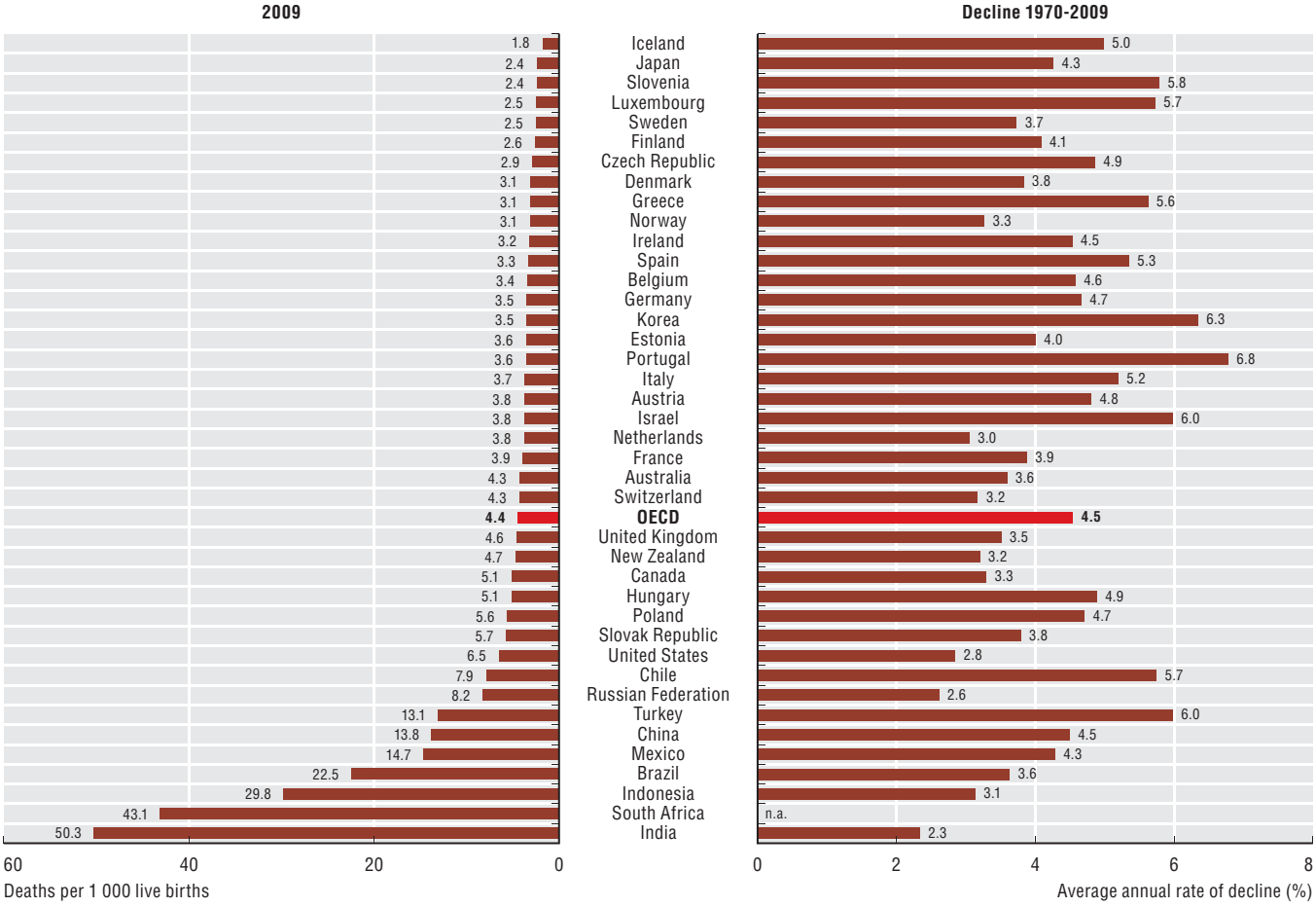
Definition and comparability

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 among live birth infants. 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 500g is applied.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

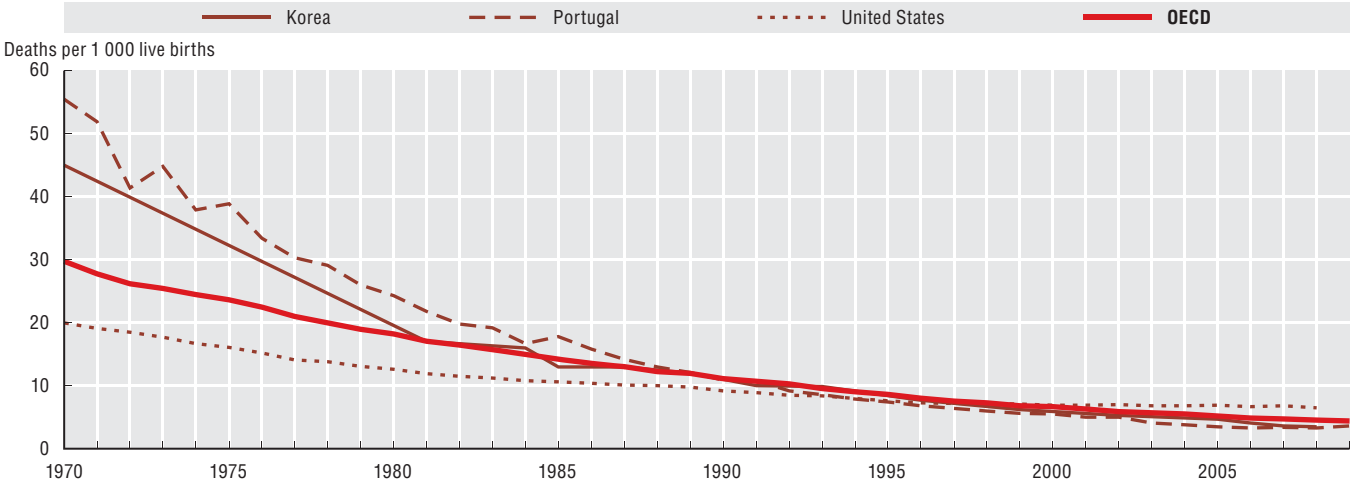
1.7.1 Infant mortality rates, 2009 and decline 1970-2009 (or nearest year)



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523614

1.7.2 Infant mortality rates, selected OECD countries, 1970-2009



Source: *OECD Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932523633

1.8. Infant health: Low birth weight

Low birth weight – defined as newborns 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 low body mass index, a background of low parental socio-economic status, and having had in-vitro fertilisation treatment.

One-in-fifteen babies born in OECD countries in 2009 – or 6.7% of all births – weighed less than 2 500 grams at birth (Figure 1.8.1). The Nordic countries (Iceland, Sweden and Finland), Estonia, Ireland and Korea reported the smallest proportions of low-weight births, with less than 5% of live births defined as low birth weight. Alongside a number of emerging countries (India, South Africa and Indonesia), Turkey and Japan are at the other end of the scale, with rates of low birth weight infants above 9% (Figure 1.8.1).

Since 1980, and more so after 1995, the prevalence of low birth weight infants has increased in most OECD countries (Figure 1.8.2). 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 birthweight babies.

Japan, Portugal and Spain have seen large increases in the past three decades, such that the proportion of low birth weight babies in these countries is now above the OECD average (Figure 1.8.2). This contrasts with the proportions of low birth weight babies in Chile, Poland and Hungary which have declined over the same time period. Little change has occurred in Finland, Sweden and Denmark, although Iceland and Norway saw rises.

Figure 1.8.3 shows some correlation between the percentage of low birth weight infants and infant mortality rates, a relationship which is stronger with the inclusion of emerging countries. 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, in the Nordic countries. Japan is an exception, since it reports the highest proportion of low birth weight infants but one of the lowest infant mortality rates.

Comparisons of different population groups within countries show that the proportion of low birth weight infants can also be influenced by differences in education, income and associated living conditions. In the United States, marked differences between groups in the proportion of low birth weight infants have been observed, with black infants having a rate almost double that of white infants (NCHS, 2011). Similar differences have also been observed among the indigenous and non-indigenous populations in Australia, Mexico and New Zealand, often reflecting the disadvantaged living conditions of many of these mothers.

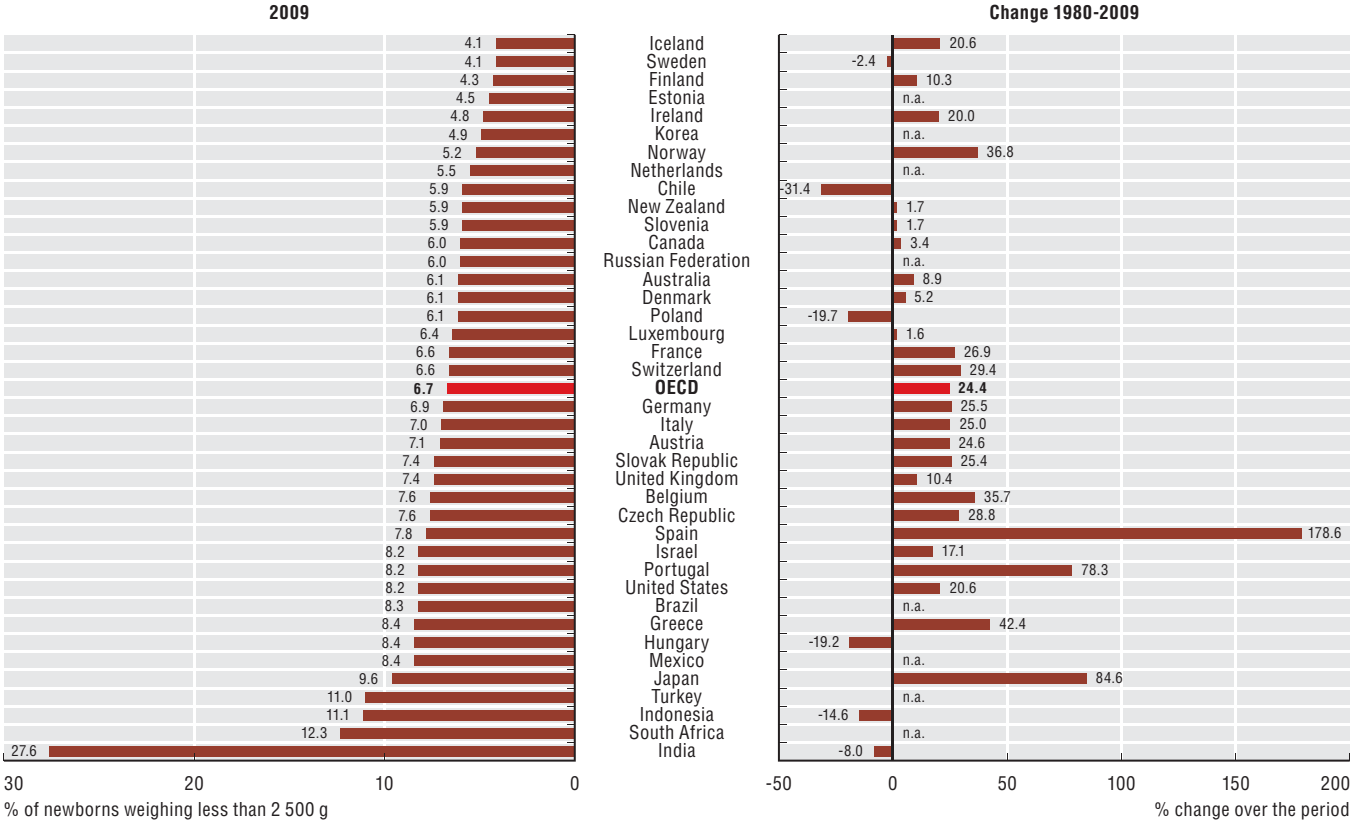
Definition and comparability

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, however for Mexico the source is a national health interview survey. A small number of countries supply data for selected regions or hospital sectors only.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

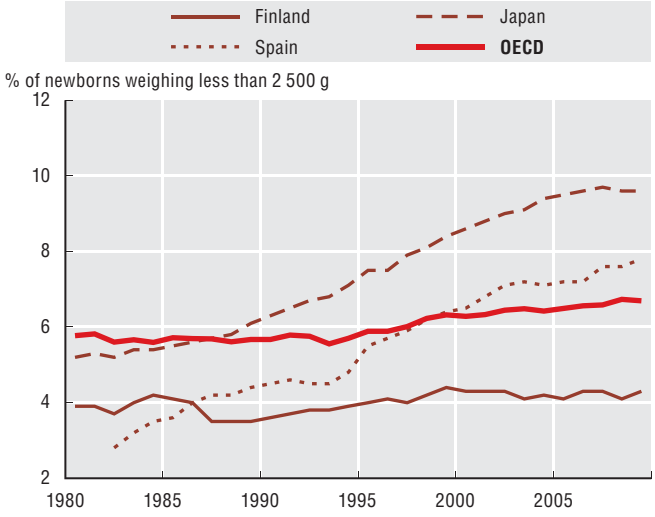
1.8.1 Low birth weight infants, 2009 and change 1980-2009 (or nearest year)



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523652

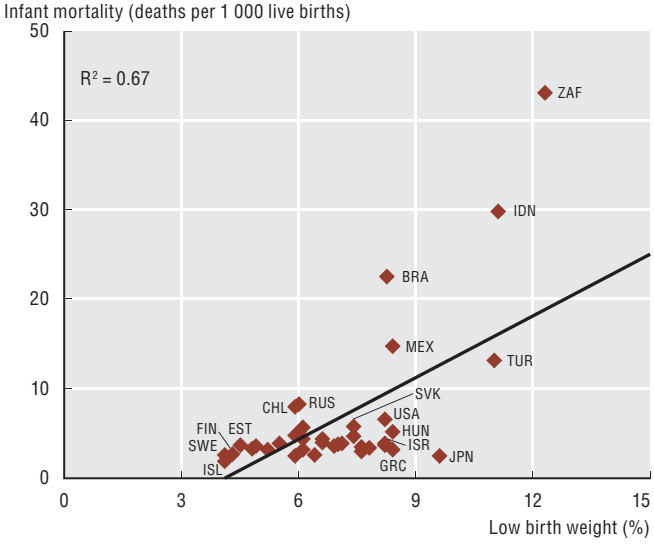
1.8.2 Trends in low birth weight infants, selected OECD countries, 1980-2009



Source: *OECD Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932523671

1.8.3 Low birth weight and infant mortality, 2009 (or nearest year)



Source: *OECD Health Data 2011*; World Bank and national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523690

1.9. Perceived health status

Most OECD 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 (for instance, see Miilunpalo *et al.*, 1997).

For the purposes of international comparison however, cross-country differences in perceived health status are difficult to interpret because responses may be affected by the formulation of survey questions and responses, and 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. And 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 OECD countries a majority of the adult population rate their health as good or better (Figure 1.9.1). The United States, New Zealand and Canada are the three leading countries, with about nine out of ten people reporting to be in good health. But the response categories offered to survey respondents in these three countries are different from those used in European countries and in Asian OECD countries, which introduces an upward bias in the results (see box on "Definition and comparability").

In Mexico and Germany, about two-thirds of the adult population rate their health as good or better. Less than half of the adult population in the Slovak Republic, Japan, Portugal and Korea rate their health as good or very good.

Focusing on within-country differences, men are more likely to report good health in all countries except in Australia, New Zealand and Finland where rates are similar. The difference is especially large in Portugal and the Czech Republic (Figure 1.9.1). Not surprisingly, 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 after age 45 and a further decline after age 65. People who are unemployed, retired or inactive report poor or very poor health more often (Baert and de Norre, 2009). People with a lower level of education or income also tend to report poorer health (Mackenbach *et al.*, 2008).

The percentage of the adult population rating their health as good or very good has remained reasonably stable over the past 30 years in most countries where long time series are available, although Japan has seen some decline since the mid-1990s (Figure 1.9.2). The same is generally true for the population aged 65 years and over.

One possible interpretation of the relative stability of the indicator of perceived general health may be related to how it is measured – that is, based on a bounded variable (*i.e.* respondents are asked to rank their health on a five-point scale that is unchanged over time), whereas life expectancy is measured without any such limit. Another interpretation is that people in these countries are living longer now, but possibly not healthier.

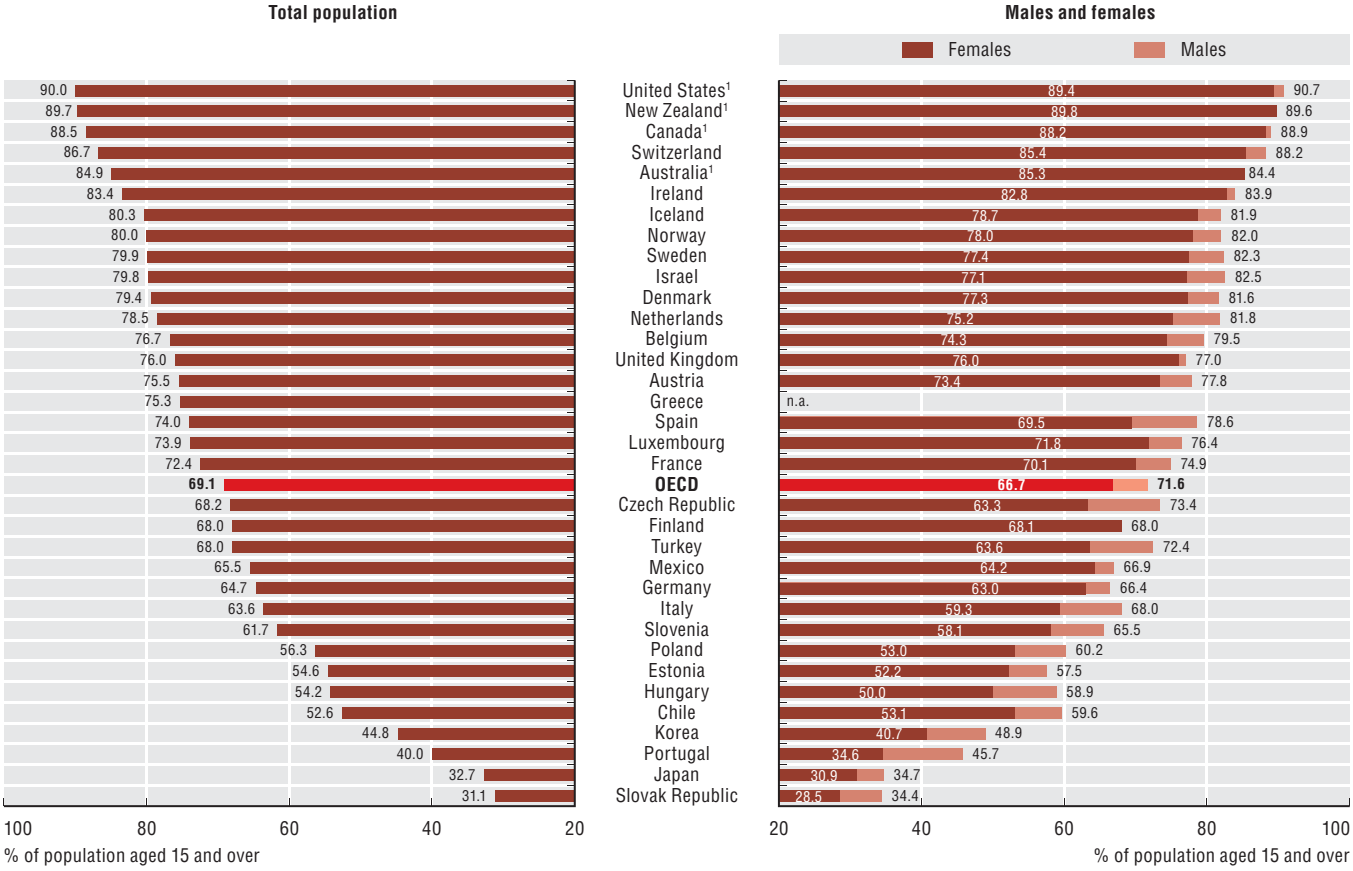
Definition and comparability

Perceived health status reflects people's overall perception of their health, including both physical and psychological dimensions. Typically ascertained through health interview surveys, respondents are asked a question such as: "How is your health in general? Is it very good, good, fair, poor, very poor". *OECD Health Data* provides figures related to the proportion of people rating their health to be "good/very good" combined.

Caution is required in making cross-country comparisons of perceived health status, for at least two reasons. First, people's assessment of their health is subjective and can be affected by factors such as cultural background and national traits. Second, there are variations in the question and answer categories used to measure perceived health across surveys and countries. In particular, the response scale used in the United States, Canada, New Zealand and Australia is *asymmetric* (skewed on the positive side), including the following response categories: "excellent, very good, good, fair, poor". The data reported in *OECD Health Data* refer to respondents answering one of the three positive responses ("excellent, very good or good"). By contrast, in most other OECD countries, the response scale is *symmetric*, with response categories being: "very good, good, fair, poor, very poor". The data reported from these countries refer only to the first two categories ("very good, good"). Such a difference in response categories biases upward the results from those countries that are using an asymmetric scale.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

1.9.1 Percentage of adults reporting to be in good health, 2009 (or nearest year)

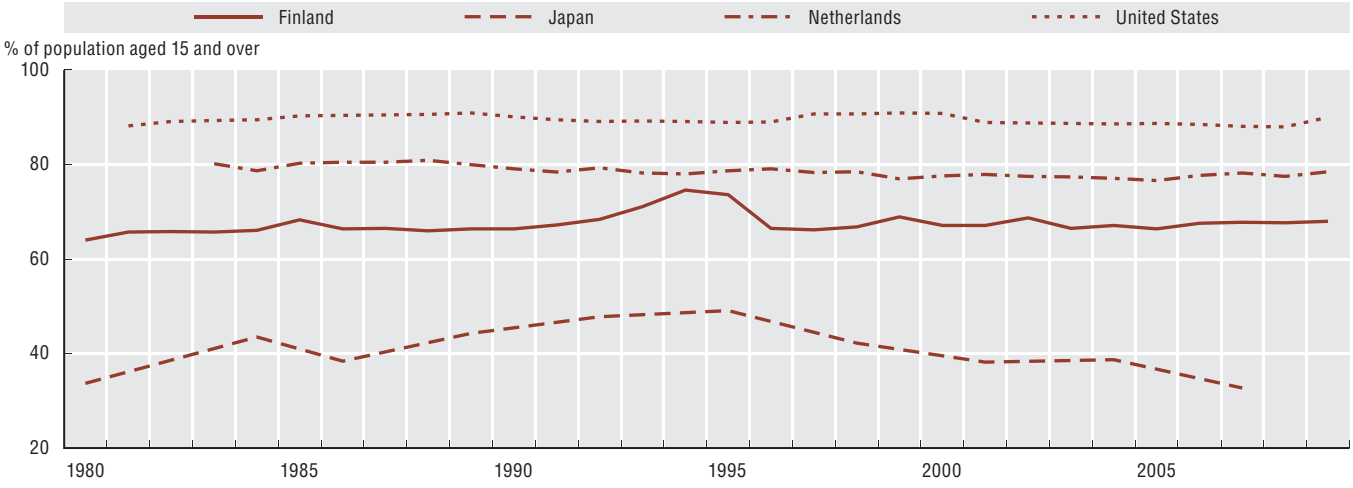


1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in an upward bias.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523709

1.9.2 Trends in the percentage of adults reporting to be in good health, selected OECD countries, 1980-2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932523728

1.10. Diabetes prevalence and incidence

Diabetes is a chronic 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 nerves and blood vessels, and renal failure requiring dialysis or transplantation.

Diabetes was the principal cause of death of almost 300 000 persons in OECD countries in 2009, and is the fourth or fifth leading cause of death in most developed countries. Among people who died with diabetes, the main cause of death for approximately half was cardiovascular disease, and renal failure for an additional 10-20%.

Diabetes is increasing rapidly in every part of the world, to the extent that it has now assumed epidemic proportions. Estimates suggest that in OECD countries, 83 million people, or more than 6% of the population aged 20-79 years had diabetes in 2010. If left unchecked, the number of people with diabetes in OECD countries will reach almost 100 million in less than 20 years. This is emphasised by the young age of the diabetic population, with almost half of adults with diabetes aged less than 60 years (IDF, 2009).

Less than 5% of adults aged 20-79 years in Iceland, Norway and the United Kingdom had diabetes in 2010, according to the International Diabetes Federation. This contrasts with Mexico and the United States, where more than 10% of the population of the same age have the disease (Figure 1.10.1). In most OECD countries, between 5 and 10% of the adult population have diabetes.

Type 2 diabetes is largely preventable. A number of risk factors, such as overweight 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 2.3 "Overweight and obesity among adults").

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. In Nordic countries (Finland, Sweden and Norway) the rate of new cases in children is notably high. Based on disease registers and recent studies, the annual number of new cases in children aged under 15 years is 25 or more per 100 000 population (Figure 1.10.2). In Mexico and Japan the rate is less than five new cases per 100 000 population. Alarmingly, there is evidence that Type 1 diabetes is occurring at an earlier age among children (IDF, 2009).

The economic impact of diabetes is substantial. Health expenditure in OECD countries in 2010 to treat and prevent diabetes and its complications was estimated at USD 345 billion (IDF, 2009). In the United States alone, some USD 116 billion was spent on diabetes-related care in 2007 (ADA, 2008). In Australia, direct health care expenditure on diabetes in 2004-05 accounted for nearly 2% of the recurrent health expenditure (AIHW, 2008a).

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 (IDF, 2006). Increasing costs reinforce the need to provide effective care for the management of diabetes and its complications (see Indicator 5.2 "Avoidable admissions: Uncontrolled diabetes").

Definition and comparability

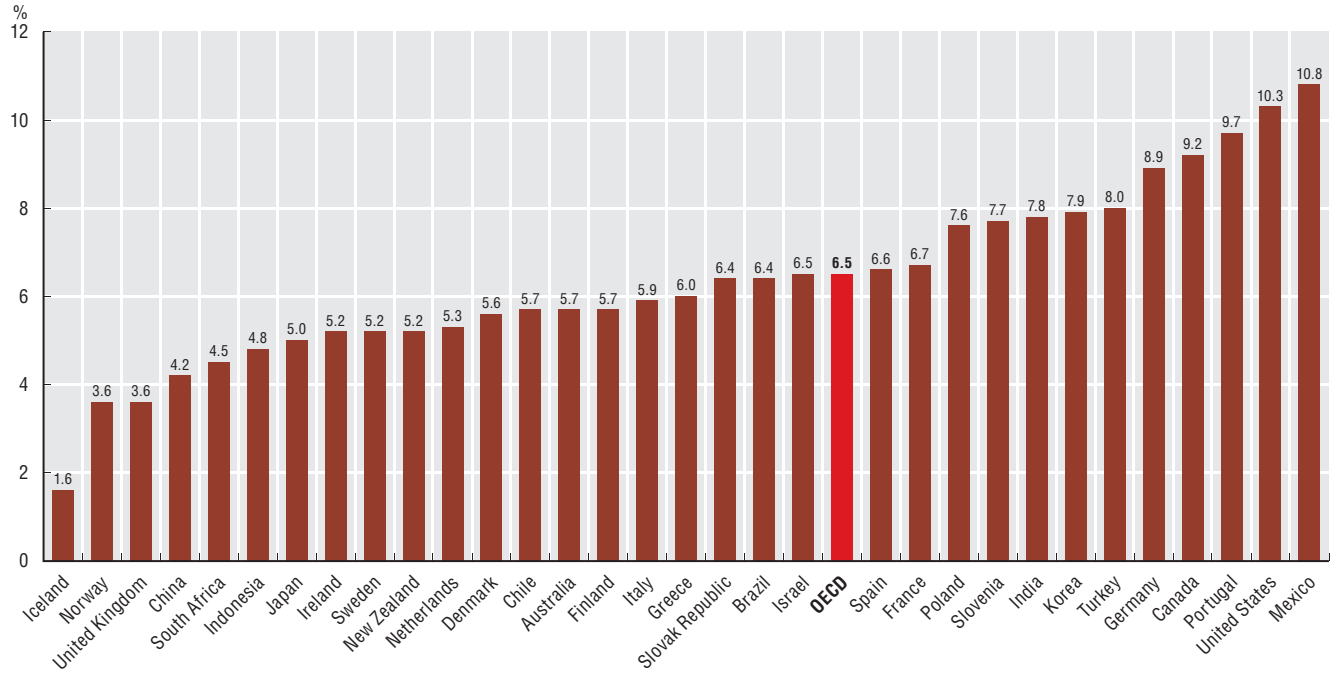
The sources and methods used by the International Diabetes Federation for publishing national prevalence and incidence estimates of diabetes are outlined in their *Diabetes Atlas*, 4th edition (IDF, 2009). Country data were derived from studies published between 1980 and February 2009, and were only included if they met several criteria for reliability.

The IDF noted that studies from several OECD countries – Canada, France, Italy, the Netherlands, Norway, Slovenia and the United Kingdom – only provided self-reported data on diabetes. To account for undiagnosed diabetes, the prevalences of diabetes for the United Kingdom and Canada were multiplied by a factor of 1.5, in accordance with local recommendations (the United Kingdom) and findings from the United States (Canada), and doubled for other countries, based on data from other regional studies.

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

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

1.10.1 Prevalence estimates of diabetes, adults aged 20-79 years, 2010

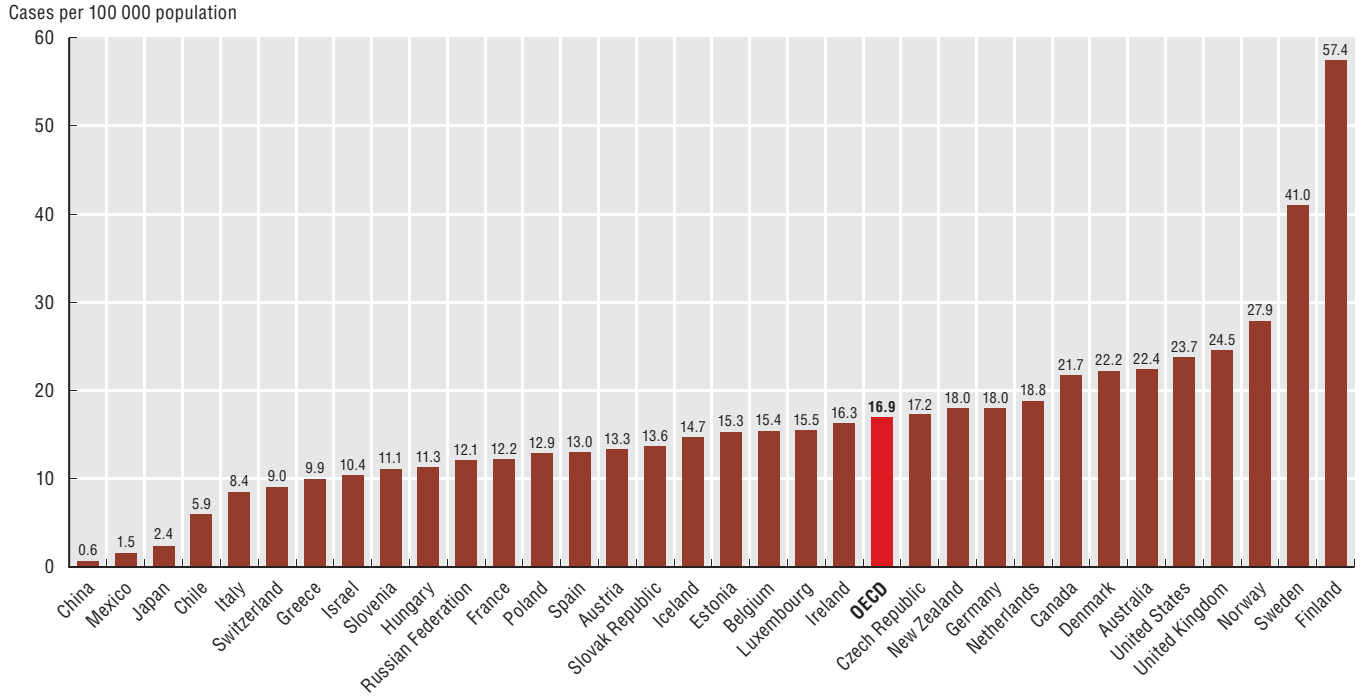


Note: The data cover both Type 1 and Type 2 diabetes. Data are age-standardised to the World Standard Population.

Source: IDF (2009).

StatLink http://dx.doi.org/10.1787/888932523747

1.10.2 Incidence estimates of Type 1 diabetes, children aged 0-14 years, 2010



Source: IDF (2009).

StatLink http://dx.doi.org/10.1787/888932523766

1.11. Cancer incidence

In 2008, an estimated 5.2 million new cases of cancer were diagnosed in OECD countries, at an average of 261 per 100 000 population. Incidence rates varied substantially among countries, being comparatively high in Denmark, Ireland, Australia, Belgium and New Zealand at over 300 (Figure 1.11.1). In a number of OECD and emerging countries including India, Mexico, Indonesia and Turkey, rates were below 150.

High-income countries tend to have higher cancer incidence rates than middle- or lower-income ones. People in high-income countries are more likely to be overweight, have higher alcohol consumption and be inactive, and each of these factors increase the risk of several common cancers. The high levels of cancer incidence in Denmark are related to these factors, given the above average proportions of Danish women who smoke, and the high consumption of alcohol. However, Denmark and other high income countries also have good records of diagnosing cancers, which contributes to higher rates. In Australia and New Zealand, high rates of melanoma of the skin contribute to the high overall incidence rate, along with above average rates of breast and prostate cancer. The lower incidence of cancer in emerging countries is in part related to the lesser use of screening tests and issues of data quality, but also due to the much smaller impact, to date, of tobacco, poor diet and lack of exercise.

The most commonly diagnosed cancers in OECD countries in 2008 were colorectal (665 000 cases) and lung cancer (663 000 cases), each making up 13% of all new cases. Among men, prostate cancer was the most common cancer (632 000 cases, or 23% of all new male cancers), followed by lung and colorectal. Among women, breast cancer was most common (639 000 cases, or 27% of all new female cancers), and then colorectal and lung cancer.

Relatively high incidence rates of breast cancer are reported in Belgium, France, Israel, the Netherlands and Ireland, with rates close to or exceeding 100 cases per 100 000 females (Figure 1.11.2). A number of countries have rates which are less than half this value, at 50 or below – Estonia, Poland and the Russian Federation, as well as Japan, Korea and a number of emerging countries. Age, family history of the disease, previous diagnosis, increased exposure to hormones, overweight and excessive alcohol drinking all increase the risk of developing breast cancer.

Incidence rates for breast cancer have increased over the past decade in almost all OECD countries for which data are available. These increases are largely due to improvements in diagnosis and the growing number of women who receive mammography screening, leading to a subsequent rise in the detection of new cases. An exception is the United States, where a recent decline in breast cancer incidence has been linked to a lower use of menopausal hormones, as well as a decline in mammography screening (American Cancer Society, 2010) (see Indicator 5.9, "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. 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) diagnostic tests, although the use of these tests has also fluctuated because of their cost and uncertainty about the long-term benefit to patients. In 2008, the incidence of prostate cancer was highest in Ireland, France, Norway and Sweden, with an age-standardised rate of more than 110 cases per 100 000 males (Figure 1.11.3). Among OECD countries, low rates of prostate cancer were reported in Turkey, Greece, Korea and Japan.

The causes of prostate cancer are not well-understood. Age and family history are the main risk factors. Some evidence suggests that a number of dietary and environmental factors might also influence the risk of prostate cancer (American Cancer Society, 2010).

Definition and comparability

Cancer incidence rates are the number of new cancer cases diagnosed in a year per 100 000 population. Rates have been age-standardised to the WHO World Standard Population.

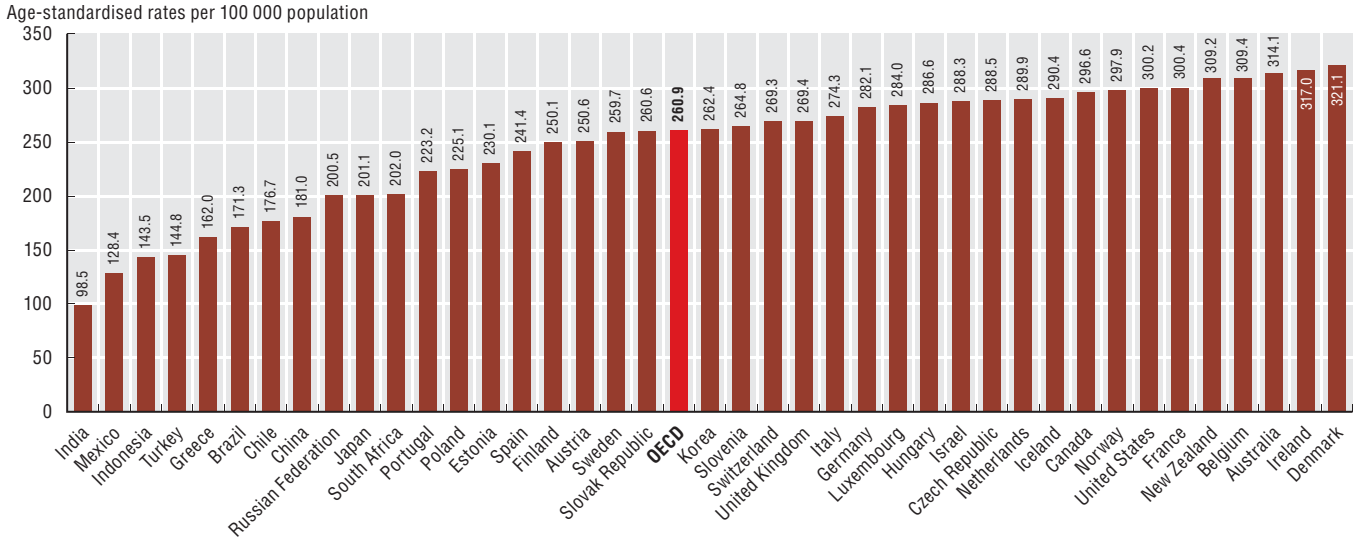
All cancers are defined as cancers coded to ICD-10 C00-C97 (excluding non-melanoma skin cancer C44), colorectal C18-C21, lung C33-C34, female breast C50, cervix C53 and prostate C61.

Data are sourced from the International Agency for Research on Cancer (IARC) *GLOBOCAN Database* (Ferlay *et al.*, 2010). Estimates for 2008 are based on cancer incidence rates over recent years.

The international comparability of cancer incidence data can be affected by differences in medical training and practices across countries, as well as the completeness and quality of cancer registry data.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

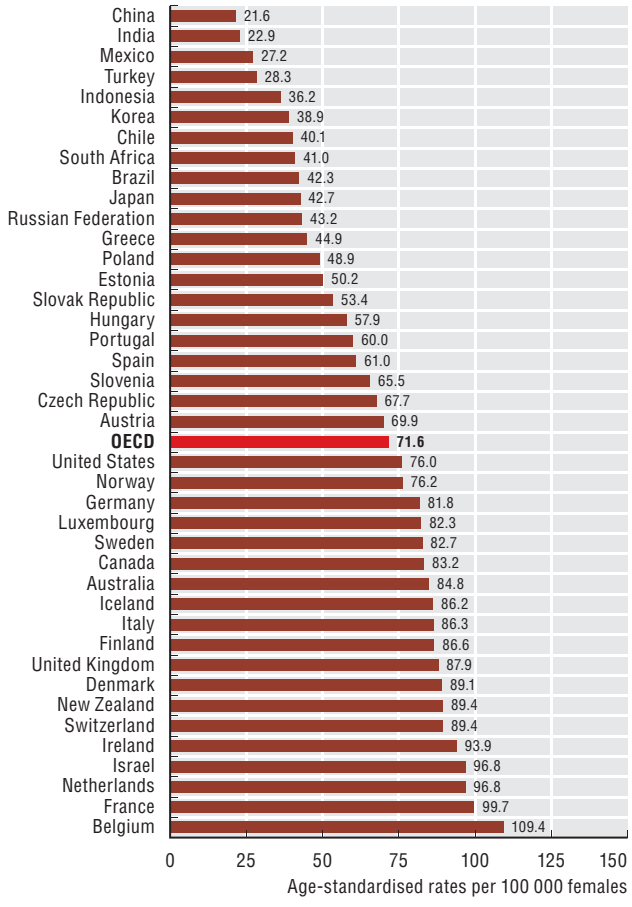
1.11.1 All cancers incidence rates, total population, 2008



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

StatLink http://dx.doi.org/10.1787/888932523785

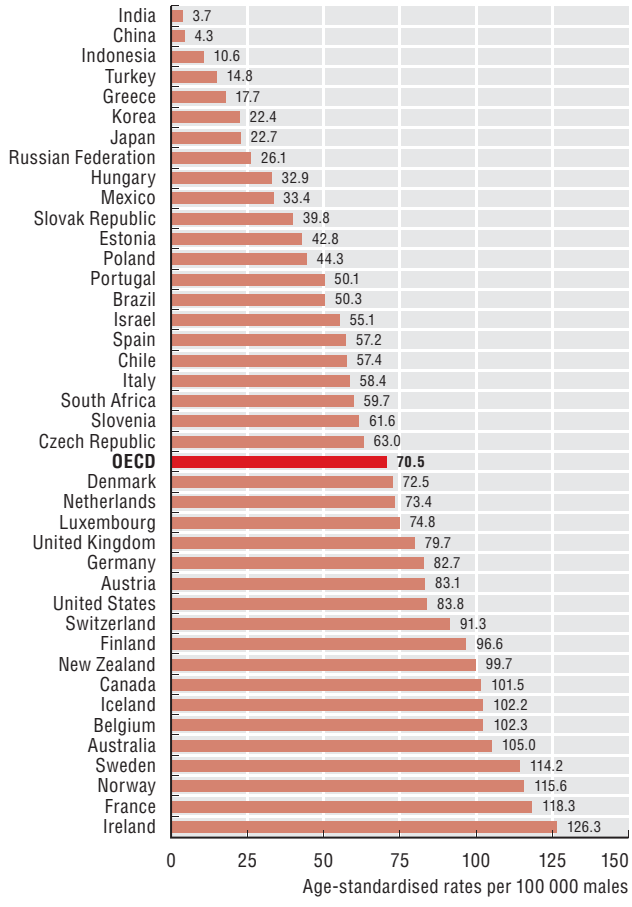
1.11.2 Female breast cancer incidence rates, 2008



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

StatLink http://dx.doi.org/10.1787/888932523804

1.11.3 Male prostate cancer incidence rates, 2008



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

StatLink http://dx.doi.org/10.1787/888932523823

1.12. AIDS incidence and HIV prevalence

The first cases of Acquired Immunodeficiency Syndrome (AIDS) were diagnosed 30 years ago. The onset of AIDS is normally caused as a result of HIV (human immunodeficiency virus) infection and can manifest itself as a 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.

In 2009, around 50 000 new cases of AIDS were reported across OECD countries, representing an unweighted average incidence rate of 14.0 per million population (Figure 1.12.1). Following the first reporting of AIDS cases in the early 1980s, the number rose rapidly to reach an average of more than 40 new cases per million population across OECD countries at its peak in the middle of the 1990s, nearly three times the current incidence rate (Figure 1.12.2). Public awareness and prevention campaigns contributed to steady declines in reported cases through the second half of the 1990s. In addition, the development and greater availability of antiretroviral drugs, which reduce or slow down the development of the disease, led to a sharp decrease in incidence during 1996-97.

The United States has consistently had the highest AIDS incidence rates among OECD countries, although it is important to note that the case reporting definitions were expanded in 1993 and hence differ from the definition used across Europe and other OECD countries. The change in definition also explains the large increase in cases in the United States in 1993 (Figure 1.12.2). Among emerging countries, the situation in South Africa remains dire with an incidence rate more than 50 times that of the United States. In excess of 10% of the entire population – and close to one-in-five of the adult population – was living with HIV infection in 2009, although there is some evidence of a slowing in incidence (UNAIDS, 2010).

In Europe, Spain reported the highest incidence rates in the first decade following the outbreak, although there has been a sharp decline since 1994, currently leaving Estonia and Portugal with the highest rates among European countries. Central European countries such as the Czech and Slovak Republics, Poland and Hungary, along with Iceland, Turkey and Germany reported the lowest incidence rates of AIDS among OECD countries in 2009.

In the United States, more than one million people are living with HIV/AIDS, with one-in-five unaware of their infection (CDC, 2010a). Almost three-quarters of new cases of AIDS are among men, and racial and ethnic minorities continue to be disproportionately affected by the epidemic. In Canada, Aboriginal people are over-represented. The predominant modes of transmission of HIV are through men having sex with men, and heterosexual contact. However, among eastern European countries injecting drug use is also a common mode (ECDC and WHO Europe, 2010).

In recent years, the overall decline in AIDS cases in OECD countries has slowed down. This reversal has been accompanied by evidence of increasing transmission of HIV in several European countries, attributed to complacency regarding the effectiveness of treatment and a waning of public awareness regarding drug use and sexual practice. Further inroads in AIDS incidence rates will require more intensive HIV prevention programmes that are focused and adapted to reach those most at risk of HIV infection (UNAIDS, 2010).

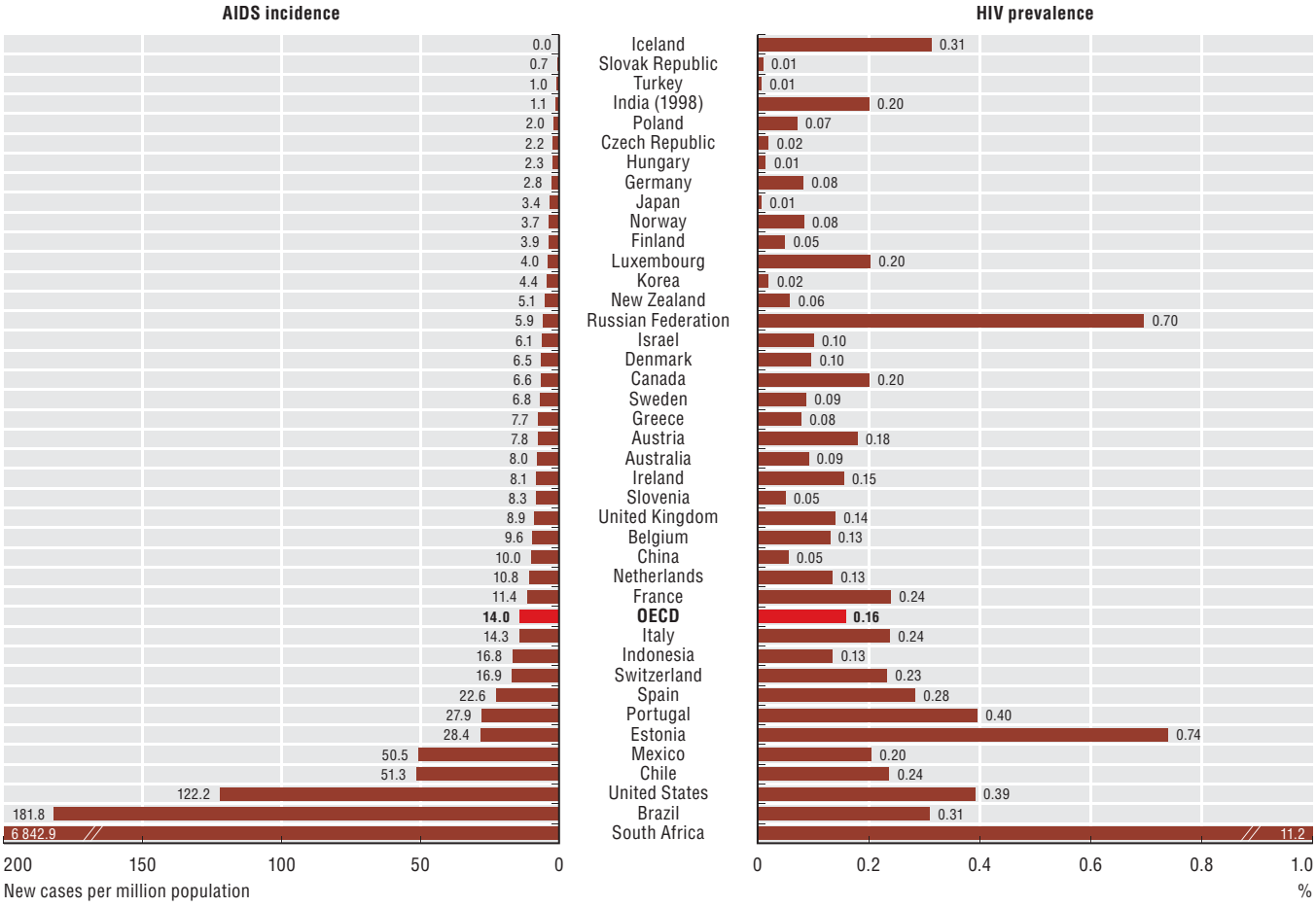
Definition and comparability

The incidence rate of AIDS is the number of new cases per million population at year of diagnosis. The prevalence rate of HIV is the proportion of the population living with the disease at a given time. Note that data for recent years are provisional due to reporting delays, which sometimes can be for several years depending on the country.

The United States expanded their AIDS surveillance case definition in 1993 to include T-lymphocyte count criteria. This broadening of the definition led to a large increase in the number of new cases in the United States in 1993 and explains some of the current variations in AIDS incidence between the United States and other OECD countries.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

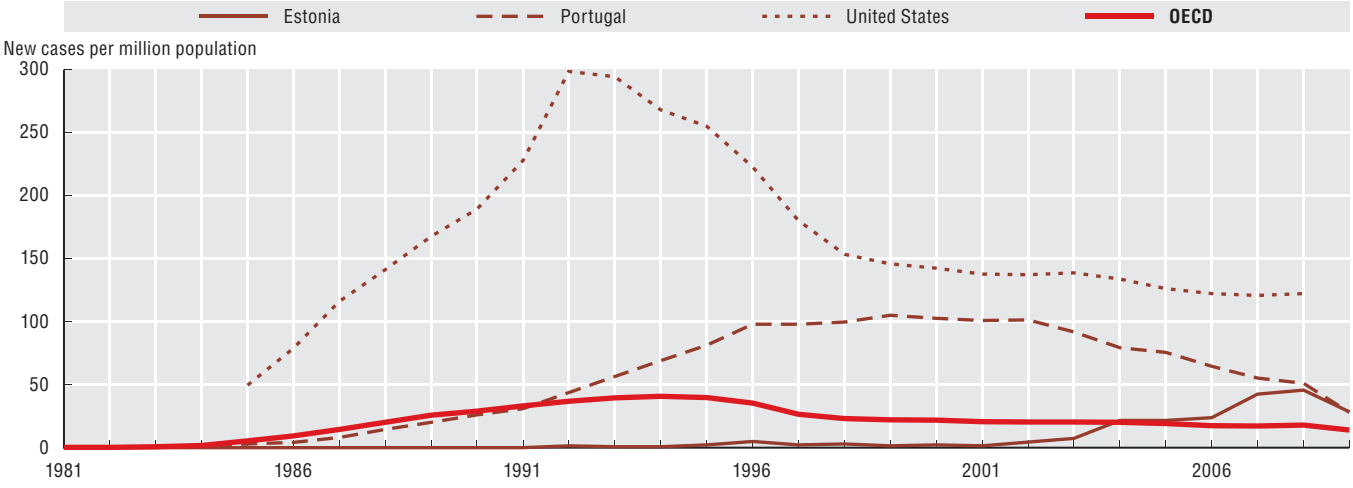
1.12.1 AIDS incidence and estimated HIV prevalence, 2009 (or nearest year)



Source: *OECD Health Data 2011*; UNAIDS (2010).

StatLink http://dx.doi.org/10.1787/888932523842

1.12.2 Trends in AIDS incidence rates, selected OECD countries, 1981-2009



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932523861

JANUARY
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2. NON-MEDICAL DETERMINANTS OF HEALTH

2.1. Tobacco consumption among adults

2.2. Alcohol consumption among adults

2.3. Overweight and obesity among adults

2.4. Overweight and obesity among children

2.1. Tobacco consumption among adults

Tobacco is responsible for about one-in-ten adult deaths worldwide, equating to about 6 million deaths each year (Shafey *et al.*, 2009). 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 OECD countries.

The proportion of daily smokers among the adult population varies greatly, even between neighboring countries (Figure 2.1.1). Thirteen of 34 OECD countries had less than 20% of the adult population smoking daily in 2009. Rates were lowest in Mexico, Sweden, Iceland, the United States, Canada and Australia. Although large disparities remain, smoking rates across most OECD countries have shown a marked decline. On average, smoking rates have decreased by about one-fifth over the past ten years, with a higher decline amongst men than women. Large declines since 1999 occurred in Denmark (31% to 19%), Iceland (25% to 16%), Norway (32% to 21%), Canada (24% to 16%) and New Zealand (26% to 18%). Greece maintains the highest level of daily smoking at 40% of the adult population, along with Chile and Ireland, with around 30%. Smoking rates are also high in the Russian Federation. Greece and the Czech Republic are among the few OECD countries where smoking rates appear to be unchanged or increasing.

In the post-war period, most OECD 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 marked 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. 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, particularly in North America (Cutler and Glaeser, 2006).

Smoking prevalence among men is higher in all OECD countries except Sweden. Male and female rates are nearly equal in Iceland, Norway and the United Kingdom (Figure 2.1.2). Female smoking rates continue to decline in most OECD countries, and in a number of cases (Canada, Ireland, the Netherlands and the United States) at an even faster pace than male rates. However, in three countries female smoking rates have been increasing over the last ten years (Czech Republic, Greece and Korea), but even in these countries women are still less likely to smoke than men. In 2009, the gender gap in smoking rates was particularly large in Korea, Japan and Turkey, as well as in the Russian Federation, Indonesia and China (Figure 2.1.2).

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 was non-smoking, mortality differences between social groups would be halved (Jha *et al.*, 2006).

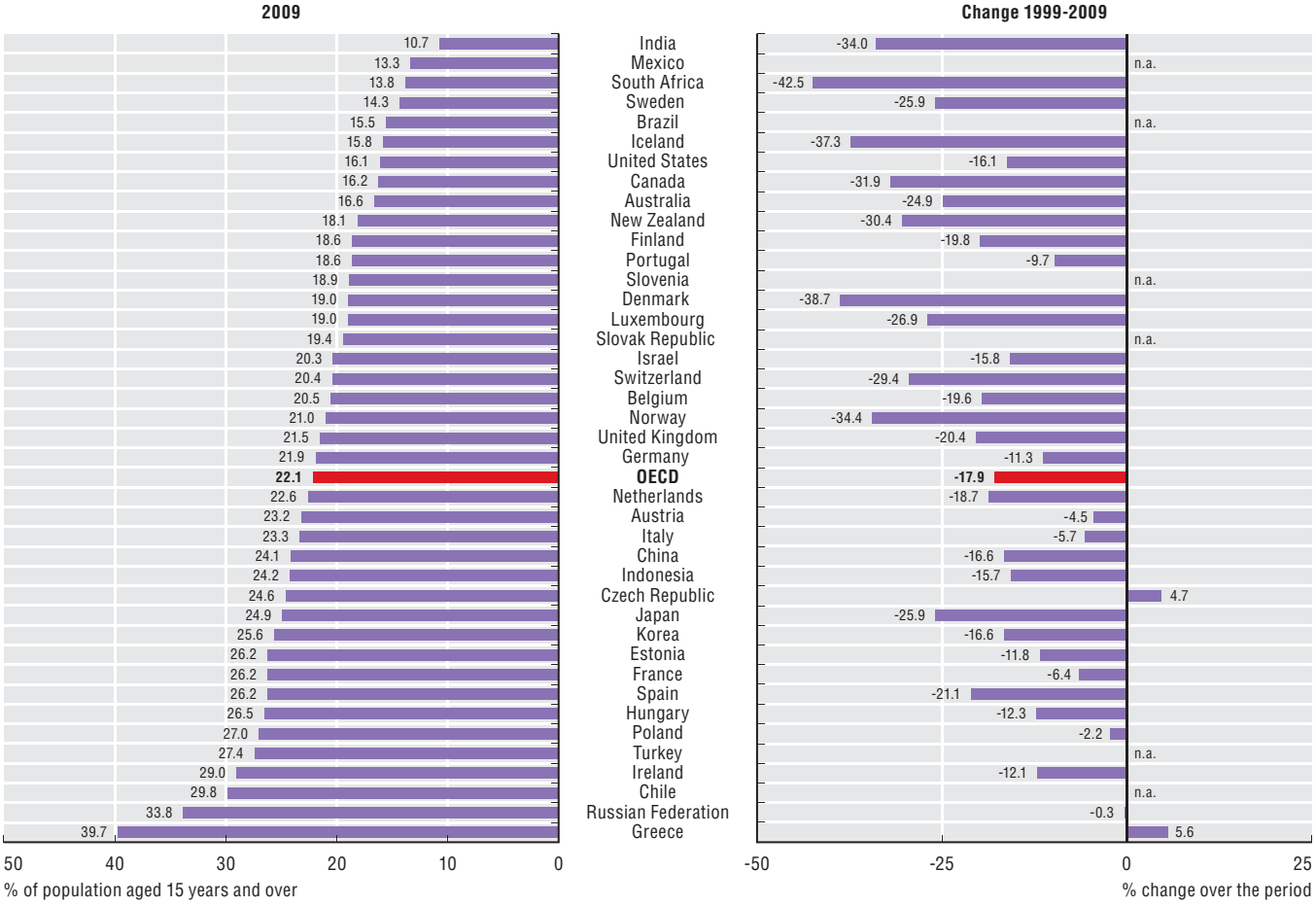
Definition and comparability

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 OECD countries. Variations remain in the age groups surveyed, the 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

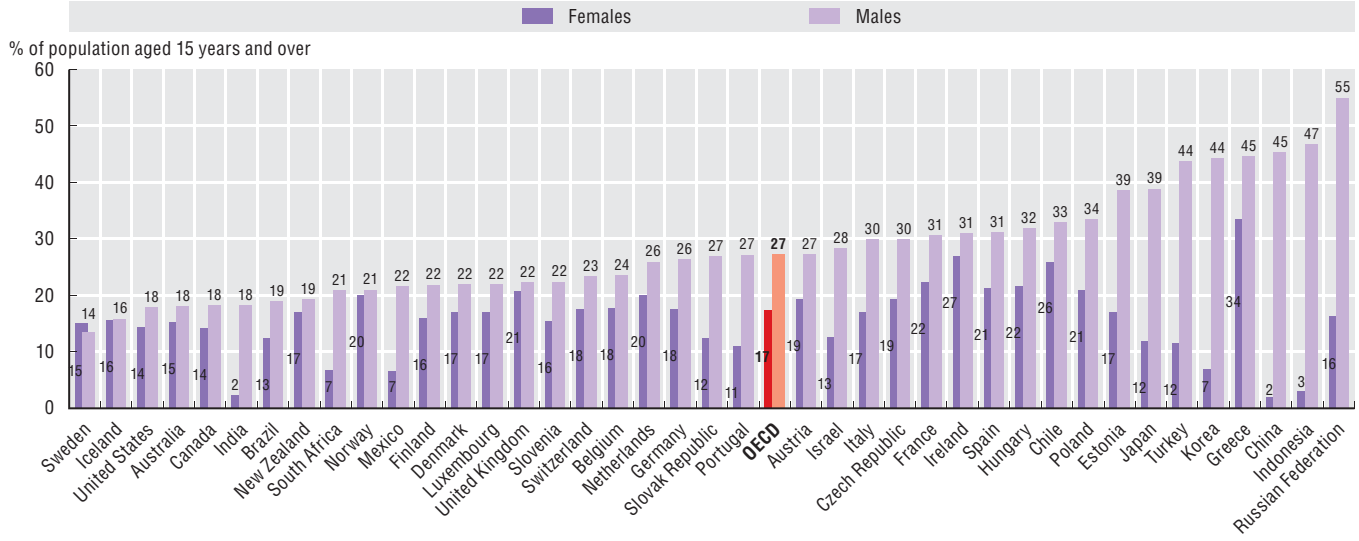
2.1.1 Adult population smoking daily, 2009 and change in smoking rates, 1999-2009 (or nearest year)



Source: *OECD Health Data 2011*; national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523880

2.1.2 Females and males smoking daily, 2009 (or nearest year)



Source: *OECD Health Data 2011*; national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523899

2.2. Alcohol consumption among adults

The health burden related to excessive alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (Rehm *et al.*, 2009; WHO, 2004a). High alcohol intake is associated with numerous harmful health and social consequences, such as 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, and is estimated to cause more than 2 million deaths worldwide per year. In the Russian Federation, the sharp rise in premature mortality and decline in life expectancy during the 1990s was due, in part, to excessive alcohol consumption (WHO, 2004a). It is, however, one of the major avoidable risk factors for disease.

Alcohol consumption as measured by annual sales stands at 9.1 litres per adult on average across OECD countries, using the most recent data available (Figure 2.2.1). France, Austria, Portugal, the Czech Republic and Estonia reported the highest consumption of alcohol, with 12.0 litres or more per adult per year in 2009. Low alcohol consumption was recorded in Indonesia, India, Turkey and Israel where religious and cultural traditions restrict the use of alcohol among some population groups, as well as in China, Mexico and some of the Nordic countries (Norway, Iceland and Sweden).

Although average alcohol consumption has gradually fallen in many OECD countries over the past three decades, it has risen in some others such as Finland and Mexico. There has been a degree of convergence in drinking habits across the OECD, 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 the Slovak Republic and Germany have seen per capita consumption fall by one third or more since 1980 (Figure 2.2.1). Alcohol consumption in the Russian Federation, as well as in Brazil and China has risen substantially, although in the latter two countries per capita consumption is still 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). Strict controls on sales and high taxation are mirrored by overall lower consumption in most Nordic countries, while falls in consumption in France, Italy and Spain may also be associated with the voluntary and statutory regulation of advertising, following a 1989 European directive.

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. The consumption of large quantities of alcohol at a single session, termed "binge drinking", is 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.

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 (WHO, 2010a).

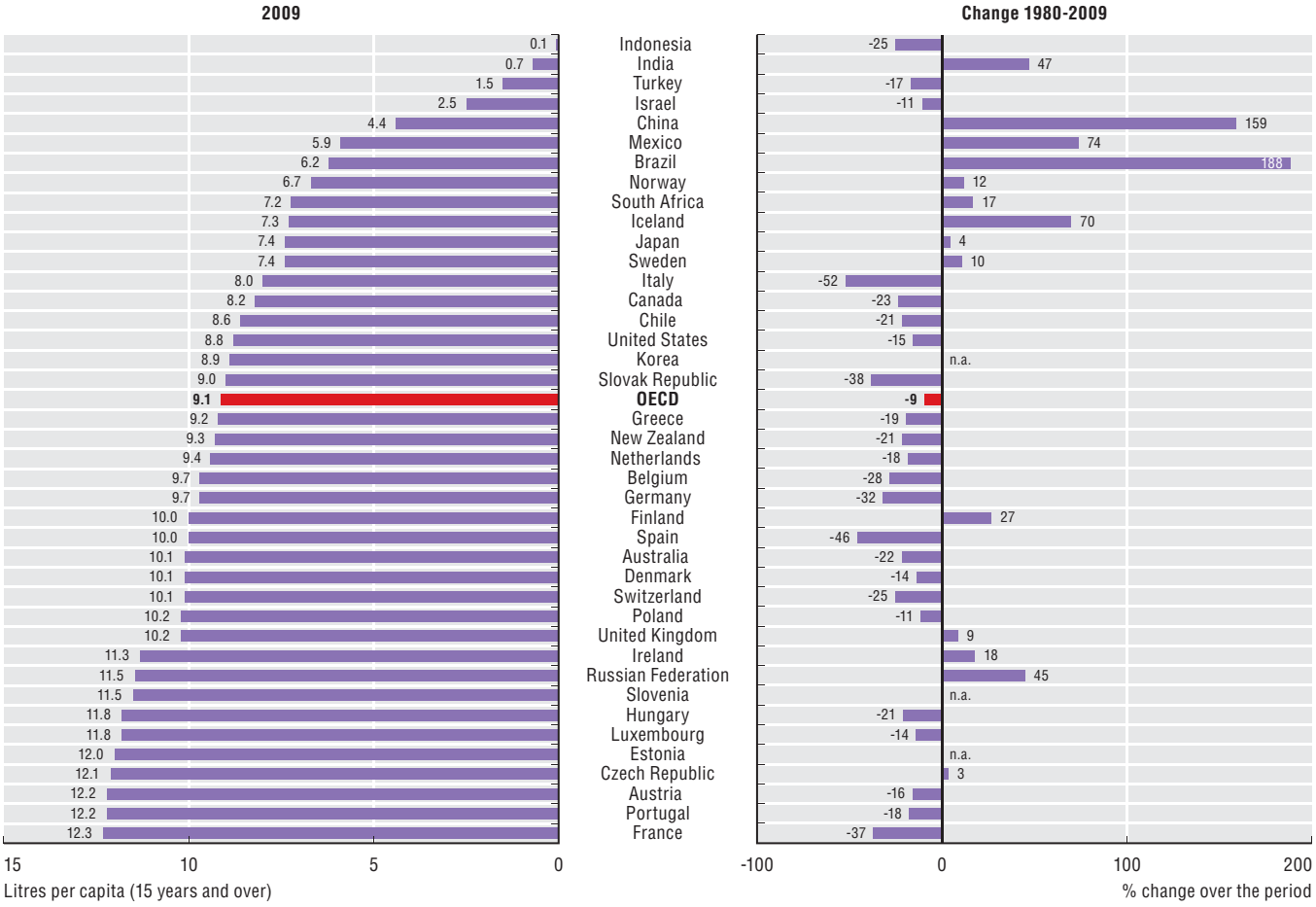
Definition and comparability

Alcohol consumption is defined as annual sales of pure alcohol in litres per person aged 15 years and over. The methodology to convert alcoholic 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, Sweden for 16 years and over, and Japan 20 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

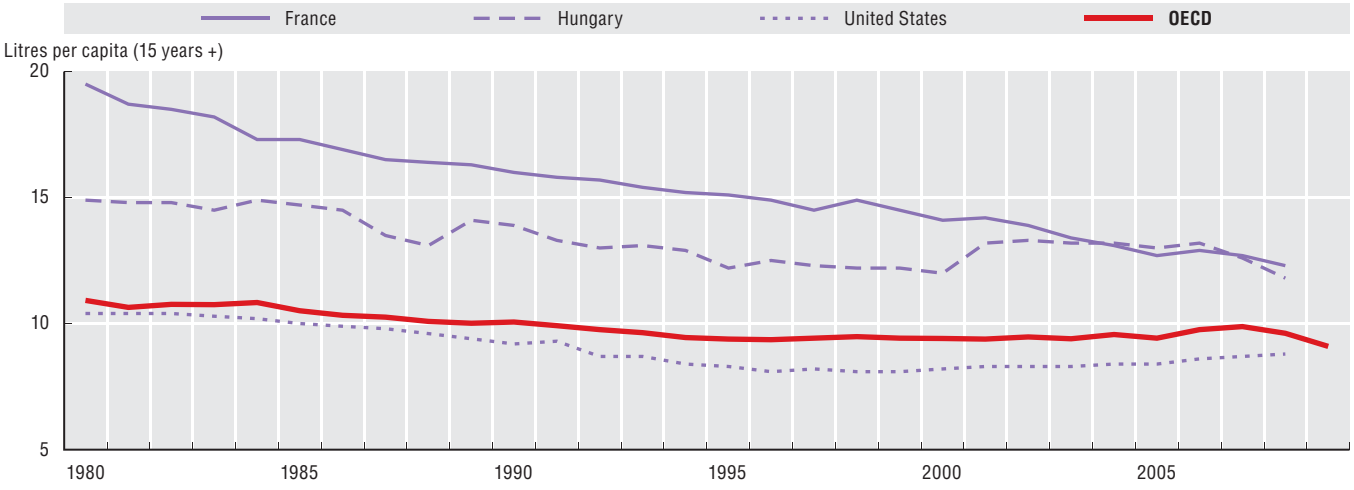
2.2.1 Alcohol consumption, population aged 15 and over, 2009 (or nearest year) and change between 1980 and 2009



Source: *OECD Health Data 2011*; WHO (2011a).

StatLink http://dx.doi.org/10.1787/888932523918

2.2.2 Trends in alcohol consumption, selected OECD countries, 1980-2009



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932523937

2.3. Overweight and obesity among adults

The rise in overweight and obesity 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 risk also increases sharply once the overweight threshold is crossed (Sassi, 2010).

Based on latest available surveys, more than half (50.3%) of the adult population in the OECD report that they are overweight or obese. Among those countries where height and weight were measured, the proportion was even greater, at 55.8%. The prevalence of overweight and obesity among adults exceeds 50% in no less than 19 of 34 OECD countries. In contrast, overweight and obesity rates are much lower in Japan and Korea and in some European countries (France and Switzerland), although even in these countries rates are increasing.

The prevalence of obesity, which presents even greater health risks than overweight, varies nearly tenfold among OECD countries, from a low of 4% in Japan and Korea, to 30% or more in the United States and Mexico (Figure 2.3.1). Across the entire OECD region, 17% of the adult population are obese. Average obesity rates among men and women are similar, although there are disparities in some countries. In South Africa, Chile, Turkey and Mexico, a greater proportion of women are obese, whereas in the Russian Federation, Luxembourg and Spain men are.

Obesity prevalence has more than doubled over the past 20 years in Australia and New Zealand, and increased by half in the United Kingdom and the United States (Figure 2.3.2). Some 20-24% of adults in Australia, Canada, the United Kingdom and Ireland are obese, about the same rate as in the United States in the early 1990s. Obesity rates in many western European countries have also increased substantially over the past decade. The rapid rise occurred regardless of where levels stood two decades ago. Obesity almost doubled in both the Netherlands and the United Kingdom, even though the current rate in the Netherlands is around half that of the United Kingdom.

The rise in obesity has affected all population groups, regardless of sex, age, race, income or education level, but to varying extents. Evidence from a number of countries (Australia, Austria, Canada, England, France, Italy, Korea, Spain and the United States) indicates that obesity tends to be more common among individuals in disadvantaged socio-economic groups, especially if they are female (Sassi *et al.*, 2009). There is also a relationship between the number of years spent in full-time education and obesity, with the more educated displaying lower rates. Again, the gradient in obesity is stronger in women than in men (Sassi, 2010). A persistent socio-economic gradient in overweight and obesity is an indication that government policies have so far not addressed the link between obesity, and social disadvantage.

A number of behavioural and environmental factors have contributed to the rise in overweight and obesity rates in industrialised countries, including falling real prices of food and more time spent being physically inactive. Overweight and obesity has risen rapidly in children in recent decades, reaching double-figure rates in most OECD countries (see also Indicator 2.4 "Overweight and obesity among children").

Because obesity is associated with higher risks of chronic illnesses, it is linked to significant additional health care costs. There is a time lag between the onset of obesity and related health problems, suggesting that the rise in obesity over the past two decades will mean higher health care costs in the future. A recent study estimated that total costs linked to overweight and obesity in England in 2015 could increase by as much as 70% relative to 2007 and could be 2.4 times higher in 2025 (Foresight, 2007).

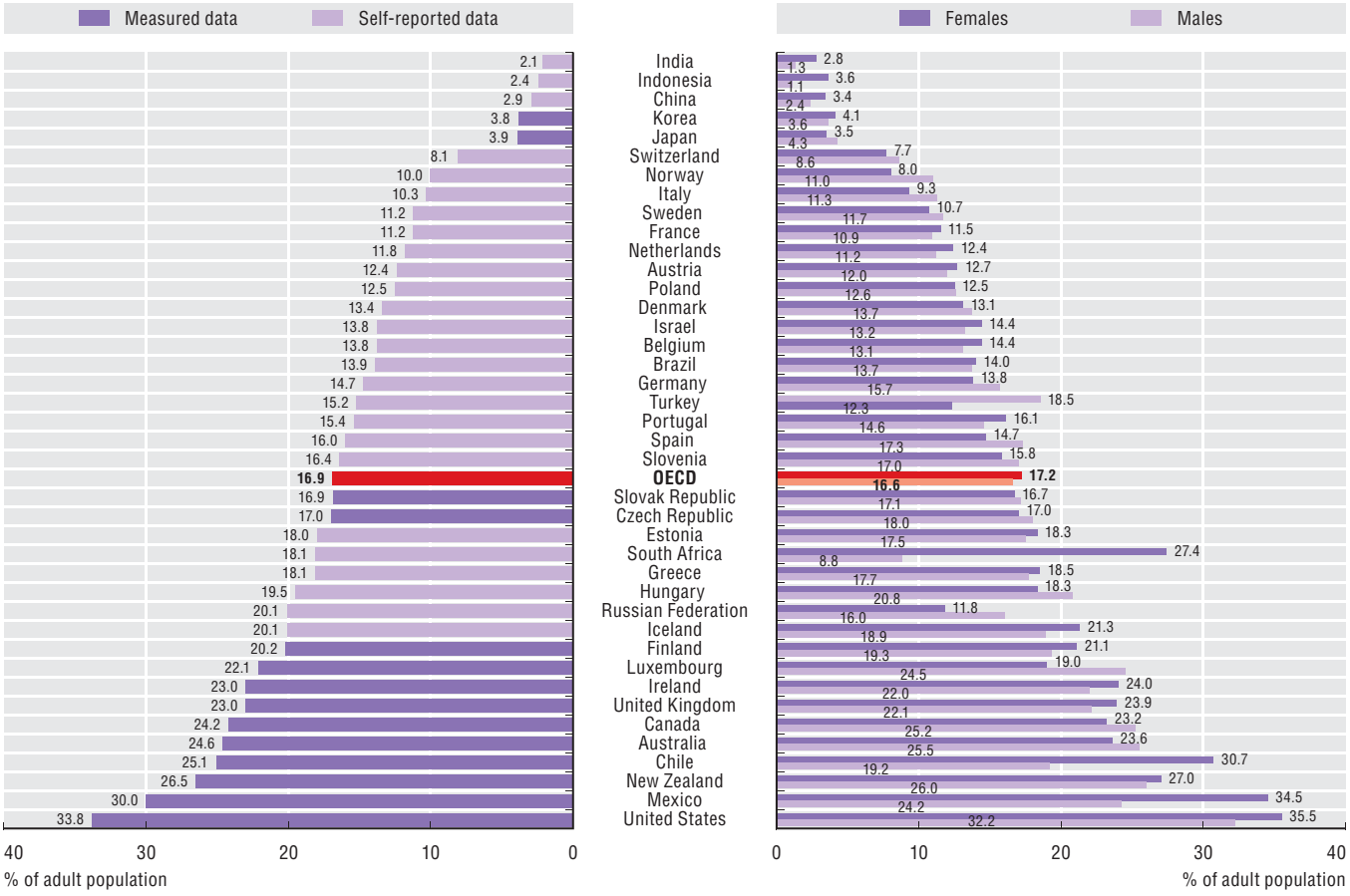
Definition and comparability

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. However, around one-third of OECD countries derive their estimates from health examinations. These differences limit data comparability. Estimates from health examinations are generally higher, and are more reliable than estimates from health interviews.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

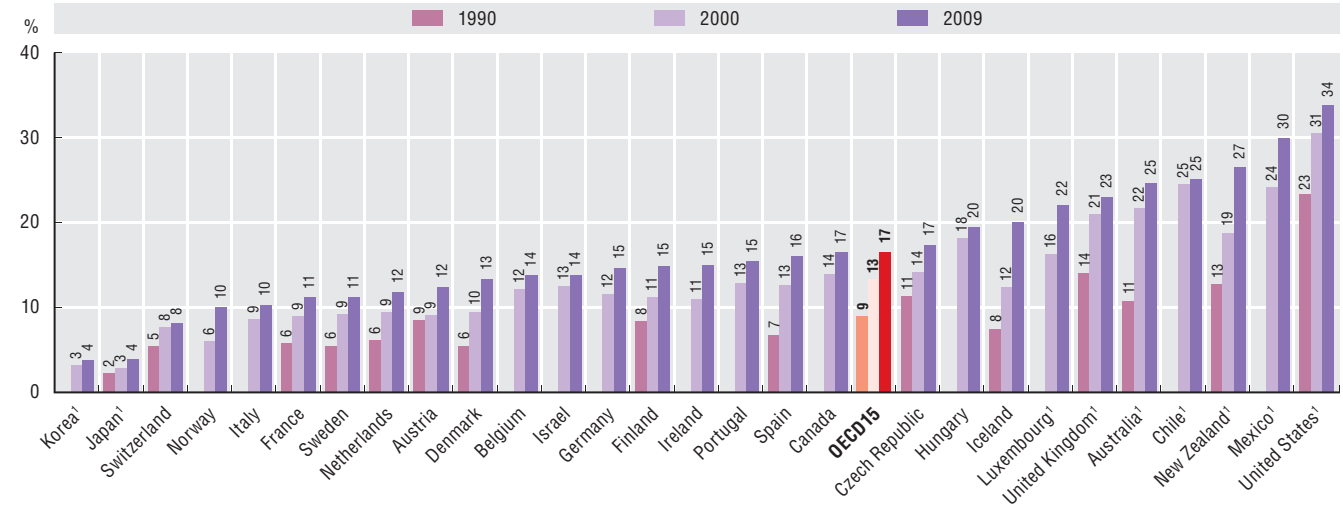
2.3.1 Prevalence of obesity among adults, 2009 (or nearest year)



Source: *OECD Health Data 2011*; national sources for non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932523956

2.3.2 Increasing obesity rates among the adult population in OECD countries, 1990, 2000 and 2009 (or nearest years)



1. Data are based on measurements rather than self-reported height and weight.

Source: *OECD Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932523975

2.4. Overweight and obesity among children

Children who are overweight or obese are at greater risk of poor health, both in adolescence and in adulthood. Being overweight in childhood increases the risk of developing cardiovascular disease or diabetes, as well as related social and mental health problems. Excess weight problems in childhood are associated with an increased risk of being an obese adult, at which point certain forms of cardiovascular diseases, cancer, osteoarthritis, a reduced quality of life and premature death can be added to the list of health concerns (Sassi, 2010).

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 or increased physical activity can combat obesity, children are at a greater risk of again putting on weight when they revert to previous lifestyles. In addition, dieting may lead to eating disorders, symptoms of stress and postponed physical development.

Figure 2.4.1 shows estimates by the International Association for the Study of Obesity of the prevalence of overweight (including obesity) in OECD and emerging countries among school-aged children aged 5-17 years, based on latest available national studies which measure height and weight, and using IASO definitions of overweight/obesity. One-in-five children are affected by excess body weight across all countries, and in Greece, the United States and Italy the figure is closer to one third. Only in China, Korea and Turkey are 10% or less of children overweight. In most countries, boys have higher rates of overweight and obesity than do girls. Girls tend to have higher rates in Nordic countries (Sweden, Norway, Denmark), as well as in the United Kingdom, the Netherlands and Australia.

Many countries recognise the need for standardised and harmonised surveillance systems on which to base policy development to address overweight and obesity among children. In response to this need, the WHO European Childhood Obesity Surveillance Initiative (COSI) aims to routinely measure trends in overweight and obesity in primary-school children. Figure 2.4.2 presents the proportion of overweight (including obese) for 6- to 9-year-old children, as measured during the first COSI data collection round undertaken in 2007-08. Prevalence estimates were based on the 2007 WHO recommended growth reference for school-aged children and adolescents (de Onis *et al.*, 2007). There are important differences among children with excess weight problems, not only across countries, but also according to their age. In general, older children have more excess weight than younger children.

Rates of overweight among boys and girls are increasing across the OECD. In many developed countries, child obesity levels doubled between the 1960s and 1980s, and have doubled again since then. Even in emerging countries, the prevalence of obesity is rising, especially in urban areas where there is more sedentary behaviour and a greater access to energy-dense foods (Sassi, 2010).

Childhood is an important period for forming healthy behaviours. The school environment provides an opportunity to ensure that children understand the importance of good nutrition and physical activity, and can benefit from both. Studies show that locally focussed actions and interventions, especially those targeting 5-12 year-olds, can be effective in changing behaviours (Sassi, 2010).

Definition and comparability

Estimates of the prevalence of child overweight were made by the International Association for the Study of Obesity (IASO). The estimates are based on national surveys of measured height and weight among children. Definitions of overweight and obesity among children may sometimes vary among countries, although wherever possible IASO age- and sex-specific cut-off points were used (Cole *et al.*, 2000). Calculated for ages 2 to 18, these cut-off points can be used for different ethnicities, and also link to widely-used adult cut-off points.

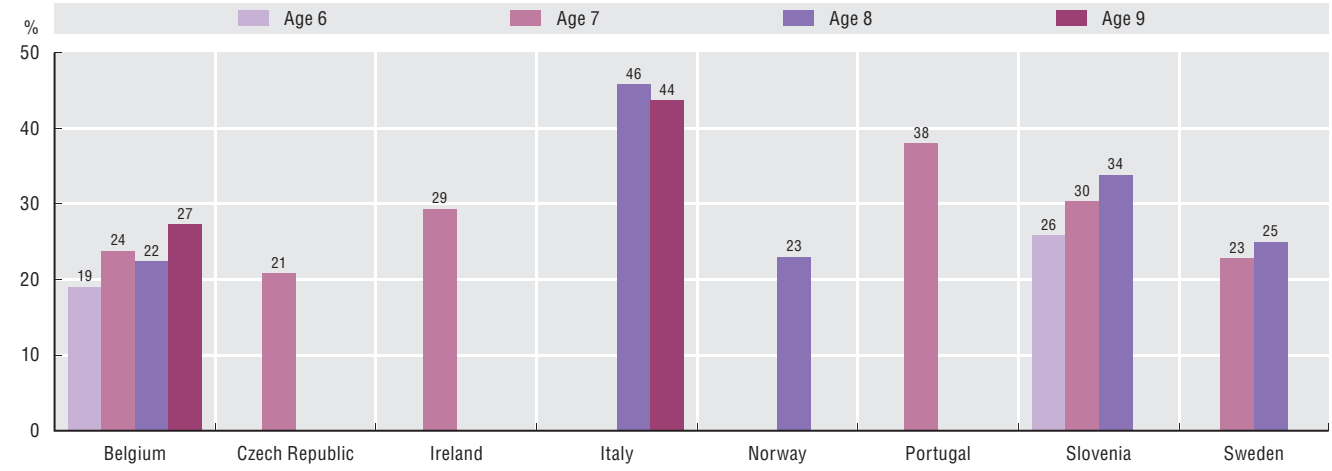
For the WHO European Childhood Obesity Surveillance Initiative (COSI), trained examiners took anthropometric measurements which were standardised according to a common protocol. Overweight was defined as the proportion of children with BMI-for-age values greater than one standard deviation, based on WHO recommended cut-offs for school-age children and adolescents (de Onis *et al.*, 2007). Body weight was adjusted for the clothes worn when measured, and extreme values (less than or greater than five standard deviations) were excluded from calculations.

2.4.1 Children aged 5-17 years who are overweight (including obese), latest available estimates

Source: International Association for the Study of Obesity (2011).

StatLink http://dx.doi.org/10.1787/888932523994

2.4.2 Prevalence of overweight (including obesity) among 6- to 9-year-old children in eight OECD countries, 2007-08



Source: WHO Regional Office for Europe, forthcoming.

StatLink http://dx.doi.org/10.1787/888932524013

3. HEALTH WORKFORCE

3.1. Employment in the health and social sectors

3.2. Medical doctors

3.3. Medical graduates

3.4. Remuneration of doctors (general practitioners and specialists)

3.5. Gynaecologists and obstetricians, and midwives

3.6. Psychiatrists

3.7. Nurses

3.8. Nursing graduates

3.9. Remuneration of nurses

3.1. Employment in the health and social sectors

The health and social sectors employ a large and growing number of people in OECD countries. The data reported in this section come from general labour force surveys and include not only people working in the health sector but also those working in the social sector (including long-term care, child care and other types of social work). The data include professionals providing direct services to people together with administrative and other support staff.

On average across OECD countries, employment in the health and social sectors accounted for just over 10% of total employment in 2009, an increase from less than 9% in 1995. The share of people working in the health and social sectors in 2009 was highest in Nordic countries and the Netherlands, accounting for over 15% of total employment. It was the lowest in Turkey and Mexico at about 3% (Figure 3.1.1).

The share of people employed in the health and social sectors has increased in nearly all OECD countries between 1995 and 2009 (Figure 3.1.1). Exceptions were found in Poland, the Slovak Republic, Sweden and Iceland, where the share of health and social sector employment in total employment declined in recent years.

Between 1995 and 2009, the workforce in the health and social sectors grew by 2.8% per year on average across OECD countries, two times faster than the growth rate of 1.3% in total civilian employment (Figure 3.1.2). In Korea, the number of people working in the health and social sectors increased at an average rate of over 8% per year during that period, compared with a growth rate in total employment of 1.1%. Nonetheless, the share of employment in the health and social sectors in Korea remains low compared with most other OECD countries.

In Japan, Germany, the Czech Republic and Turkey, the employment growth rate in the health and social sectors has also exceeded by a wide margin the growth rate in total employment in recent years.

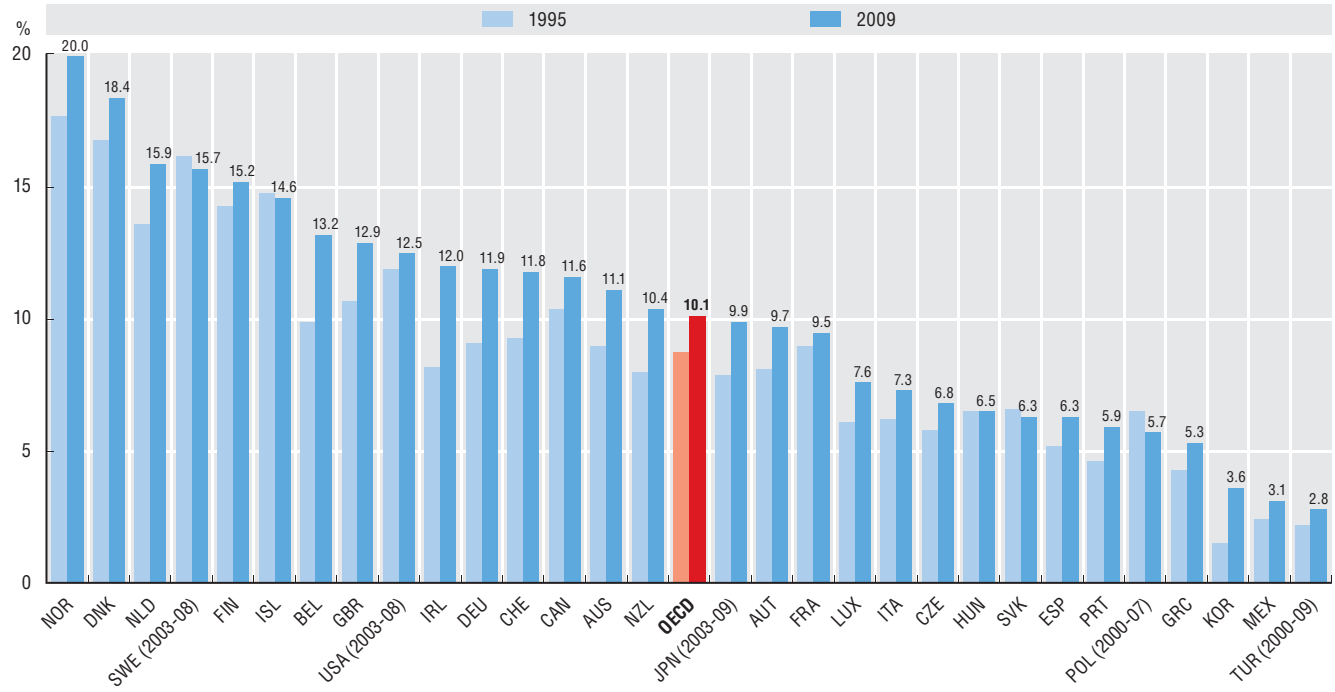
Across the OECD, the recent economic crisis has hit the health and social sectors much less than other parts of the economy. In most countries, employment in the health and social sectors continued to increase in 2008 and 2009, at a time when total civilian employment remained flat or started to decline as economies entered into recession. In Ireland, for instance, employment in the health and social sectors grew by 3% from 2008 to 2009 while total employment fell by 8%. Similarly, in Japan, overall employment fell by 1.6% between 2008 and 2009 whereas employment in the health and social sectors grew by almost 4%.

Definition and comparability

Employment in the health and social sectors includes people working in the following groups of the International Standard Industrial Classification (ISIC) Rev. 3: 851 (Human health activities), 852 (Veterinary activities) and 853 (Social work activities). The data are based on head counts, not taking into account whether people are working full-time or part-time.

Data for all countries come from labour force surveys, so as to achieve greater comparability. In many countries, more specific surveys of health facilities or health professionals can also provide more specific data on employment in the health sector and for specific occupations. Such data sources are used to provide more detailed information for some of the more specific health occupations presented in the following sections.

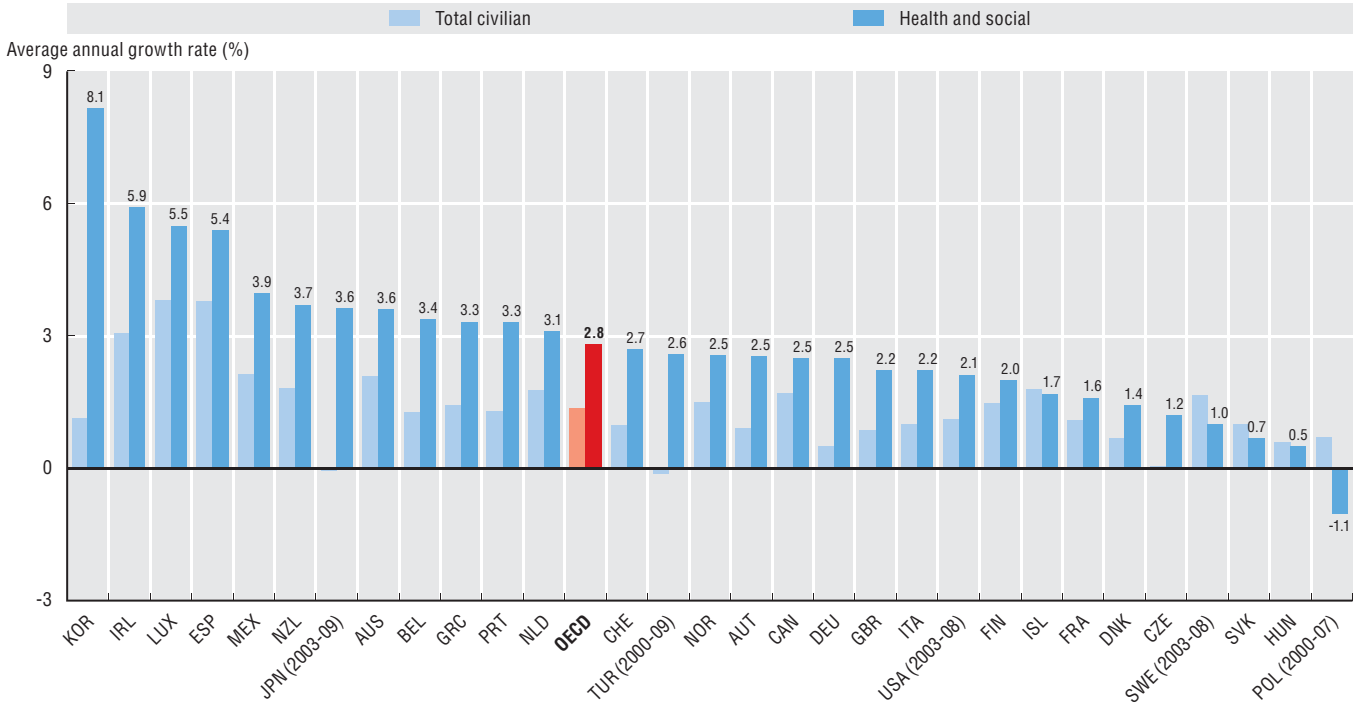
3.1.1 Employment in the health and social sectors as a share of total civilian employment, 1995 and 2009 (or nearest year)



Source: OECD Annual Labour Force Statistics.

StatLink http://dx.doi.org/10.1787/888932524032

3.1.2 Employment growth rate in the health and social sectors compared with all sectors in the economy, 1995 to 2009 (or nearest year)



Source: OECD Annual Labour Force Statistics.

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3.2. Medical doctors

This section provides information on the number of doctors per capita in OECD countries, including a disaggregation by general practitioners and specialists. In 2009, there were just over three doctors per 1 000 population across OECD countries. Greece had by far the highest number of doctors per capita (6.1 per 1 000 population), followed by Austria. Chile, Turkey, Korea and Mexico had the lowest number of doctors per capita with between one and two doctors per 1 000 population. The number of doctors per capita is lower in some of the major emerging economies, with less than one doctor per 1 000 population in Indonesia, India and South Africa.

Between 2000 and 2009, the ratio of physicians per 1 000 population has grown in most OECD countries, at a rate of 1.7% per year on average (Figure 3.2.1). The growth rate was particularly rapid in countries which started with lower levels in 2000 (Turkey, Chile, Korea and Mexico) as well as in the United Kingdom and Greece. In the United Kingdom, graduation rates from medical education programmes have been above the OECD average during that period, resulting in high and rising numbers of doctors (see Indicator 3.3 "Medical graduates"). On the other hand, there was no growth in the number of physicians per capita in Estonia, France, Israel and Poland, while there was a marked decline in the Slovak Republic. This decline in the Slovak Republic can be explained at least partly by a reduction in the number of medical graduates since the late 1990s. In France, following the reduction in the number of new entrants into medical schools during the 1980s and 1990s, the number of doctors per capita began to decline since 2006. Due to the time it takes to increase graduate numbers, this downward trend is expected to continue.

In 2009, 43% of doctors on average across OECD countries were women, up from 29% in 1990. This ranged from highs of more than half in central and eastern European countries (Estonia, Slovenia, Poland, the Slovak Republic, the Czech Republic, and Hungary) and Finland, to lows of less than 20% in Korea. The share of female physicians increased in all OECD countries over this time period with particularly large increases in the United States, Spain and Denmark.

The age composition of the physician workforce is one of the factors contributing to concerns about potential shortages in several countries. In 2009, on average across OECD countries, about 30% of all doctors were over 55 years of age. However, this share varies considerably across countries. Israel has the highest share of physicians above the age of 55 with 46%, whereas more than 35% of all doctors in Chile, France, Germany, Hungary and Italy are over 55. In the United Kingdom and Korea, a much lower proportion of physicians are aged over 55, due to large numbers of new graduates entering medical practice in the last decade.

The balance in the physician workforce between general practitioners and specialists has changed over the past few decades, with the number of specialists increasing much more rapidly. Although health policy and health research emphasises the importance and cost-effectiveness of generalist primary care (Starfield *et al.*, 2005), on average across OECD countries, general practitioners made up only a quarter of all physicians. There were more than two specialists for every general practitioner in 2009, while this ratio was one-and-a-half in 1990. Specialists greatly out-number generalists in central and eastern European countries and in Greece. However, some countries have maintained a more equal balance between specialists and generalists, such as Australia, Canada, France, and Portugal, where generalists made up nearly half of all doctors. In some countries, for example in the United States, general internal medicine doctors are categorised as specialists although their practice can be very similar to that of general practitioners, resulting in some underestimation of the capacity of these countries to provide generalist care (Figure 3.2.2).

Forecasting the future supply and demand of doctors is difficult, because of uncertainties concerning overall economic growth, changes in physician productivity, advances in medical technologies, changing roles of physicians *versus* other care providers, as well as changes in the health needs of the population. In the United States, the Department for Health and Human Services (HRSA, 2008) has estimated that the *demand* for physicians might increase by 22% between 2005 and 2020 while the *supply* might only increase by 16.5% under a certain set of assumptions. These projections did not take into account the expansion of health insurance coverage under the 2010 healthcare reform proposal.

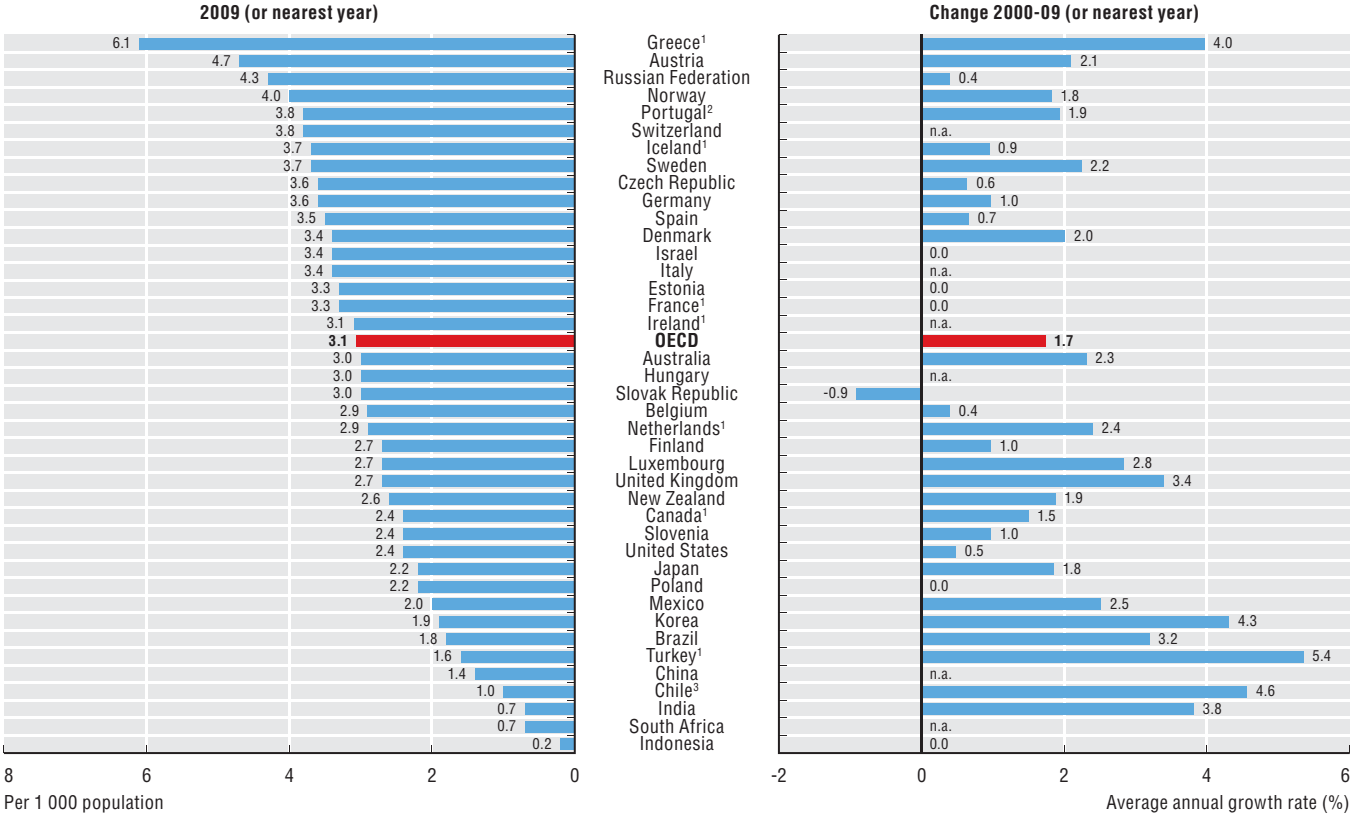
Definition and comparability

The data for most countries refer to practising medical doctors, defined as the number of doctors who are providing care directly to patients. In many countries, the numbers include interns and residents (doctors in training). The numbers are based on head counts. Several countries also include doctors who are active in the health sector even though they may not provide direct care to patients. The data from Ireland include all doctors with addresses in Ireland under the age of 70. Portugal reports the number of physicians entitled to practice (resulting in an over-estimation). Data for Spain include dentists and stomatologists, while data for Belgium include stomatologists (also resulting in a slight over-estimation). Data for Chile include only doctors working in the public sector.

Not all countries are able to report all their physicians in the categories of specialists and generalists. For example, specialty-specific data may not be available for doctors in training or for those working in private practice.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

3.2.1 Practising doctors per 1 000 population, 2009 and change between 2000 and 2009

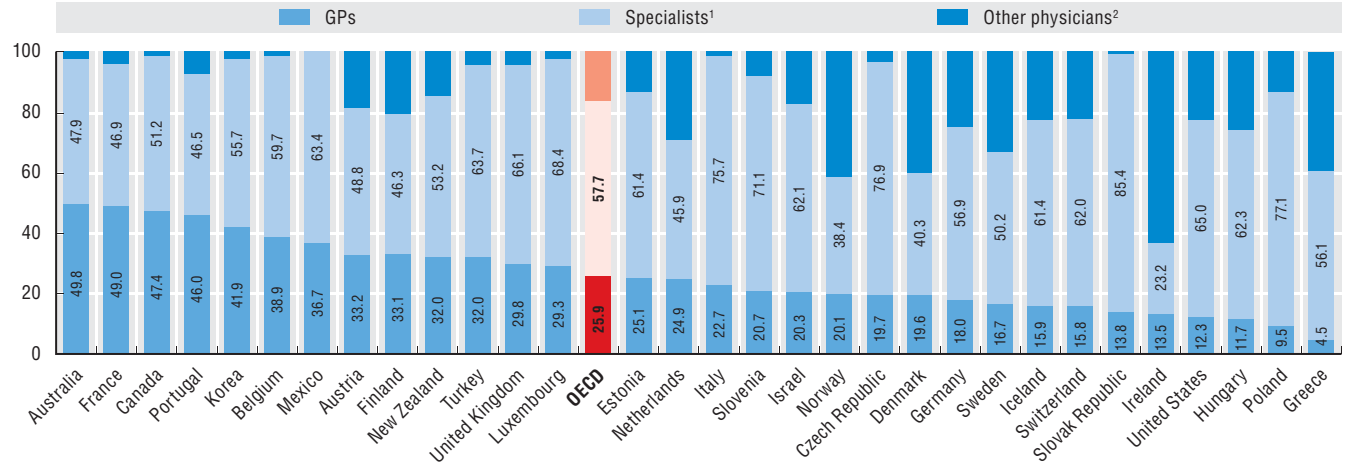


1. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).
2. Data refer to all doctors who are licensed to practice.
3. Data for Chile include only doctors working in the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

Source: OECD Health Data 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932524070

3.2.2 General practitioners, specialists and other doctors as a share of total doctors, 2009 (or nearest year)



1. Specialists include paediatricians, obstetricians/gynaecologists, psychiatrists, medical specialists and surgical specialists.
2. Other doctors include interns/residents if not reported in the field in which they are training, and doctors not elsewhere classified.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524089

3.3. Medical graduates

Maintaining or increasing the number of doctors requires either investment in training new doctors or recruiting trained physicians from abroad. As it takes about ten years to train a doctor, any current shortages can be met only by recruiting qualified doctors from abroad, unless there are unemployed doctors at home. Conversely, any surpluses or sudden fall in demand may mean that new graduates, in particular, struggle to find vacant posts at home.

Virtually all OECD countries exercise some form of control over medical school intakes, often by limiting the number of available training places, for example in the form of a *numerus clausus*. Such control is motivated by different factors including: *i)* confining medical entry to the most able applicants; *ii)* the desire to control the total number of doctors for cost-containment reasons (because greater supply induces greater demand); and *iii)* the cost of training itself (in all countries, including the United States, a significant part of medical education costs are publicly funded, so expansion of the number of medical students involves significant public expenditure).

Austria, Ireland, Denmark and Greece had the highest number of medical graduates per 100 000 population in 2009. In countries such as Ireland and the Czech Republic, a large share of graduates is made up of foreign students who may return home upon graduation. Graduation rates were the lowest in Israel, France, Japan and the United States. The average across OECD countries was close to ten new medical graduates per 100 000 population (Figure 3.3.1).

Measured in proportion to the stock of physicians (*i.e.* a measure of the replacement rate), the number of new medical graduates in 2009 was also the highest in Ireland and Austria, along with Chile and Korea (which still have, however, a very low number of doctors per capita). It was the lowest in Israel, France and Spain. The average across OECD countries was 32.5 medical graduates per 1 000 currently employed doctors (Figure 3.3.2).

In several countries (*e.g.* Canada, Denmark and the United Kingdom), the number of medical graduates has risen strongly since 2000. In some other countries (*e.g.* Sweden), the rise has been more recent. The increased intake in these countries follow periods of stable or declining graduation numbers in the preceding years, reflecting deliberate changes in policies to train more doctors (Figure 3.3.3). In Germany, although the numbers of medical graduates had started to increase in the past few years, the previous decline will take time to reverse. Due to current concerns about a shortage of doctors, Germany has liberalised its labour market access for doctors from non-EU countries in 2011.

In Italy and France, there was a marked decline in the number of medical graduates between the mid-1980s and the mid-1990s, after which it continued to fall but at a slower rate in the case of France, and stabilised in the case of Italy. The fall in medical graduate numbers in the past has had an impact on the age distribution of the physician workforce; Italy and France are among the OECD countries with the highest proportion of doctors above the age 55 years. Even with an increase in the number of medical school admissions in recent years, the number of doctors leaving the profession will exceed the number of new entrants during this decade. Israel has the highest share of doctors above age 55 among OECD countries, and the lowest replacement rate.

Japan has one of the lowest physician densities among OECD countries. Following a decline of medical school intakes from 8 280 students to 7 625 between 1981 and 2007, admissions to medical faculties increased to 8 923 students in 2011 (MEXT, 2010). Japan also uses medical intake regulation to address geographical inequalities in the distribution of physicians. The quotas of medical departments in underserved regions were expanded, and students who committed to working in underserved areas were given preference in admission (MHLW, 2007).

Definition and comparability

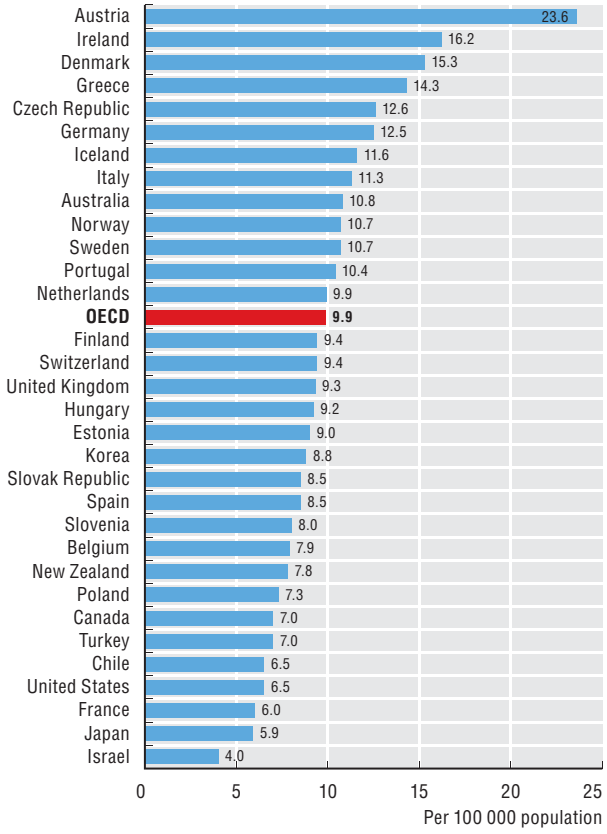
Medical graduates are defined as the number of students who have graduated from medical schools or similar institutions in a given year. Dental, public health and epidemiology graduates are excluded.

The data for the United Kingdom exclude foreign graduates, while other countries include them (foreign graduates account for about 30% of all medical graduates in the Czech Republic). In Denmark, the data refer to the number of new doctors receiving an authorisation to practice.

In Luxembourg, the university does not provide medical training, so all doctors are foreign-trained, mostly in Belgium, France and Germany.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

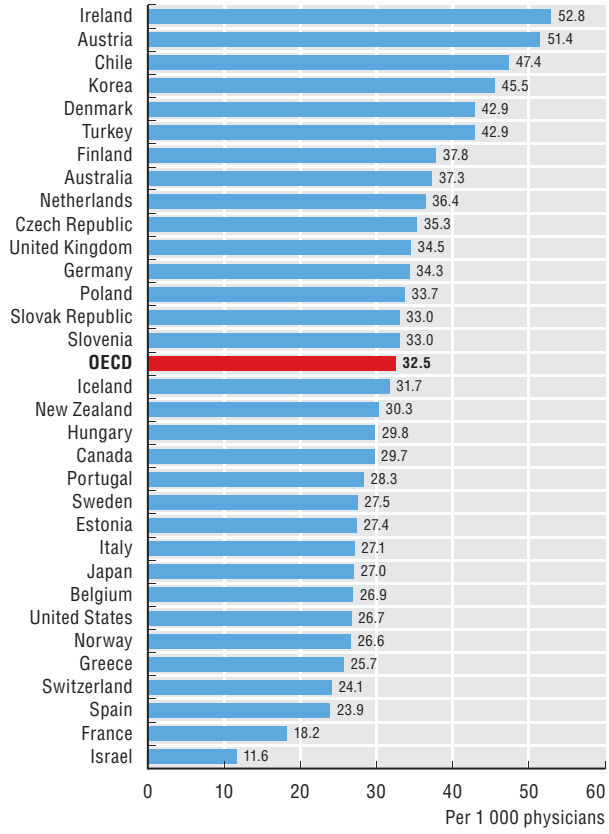
3.3.1 Medical graduates per 100 000 population, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524108

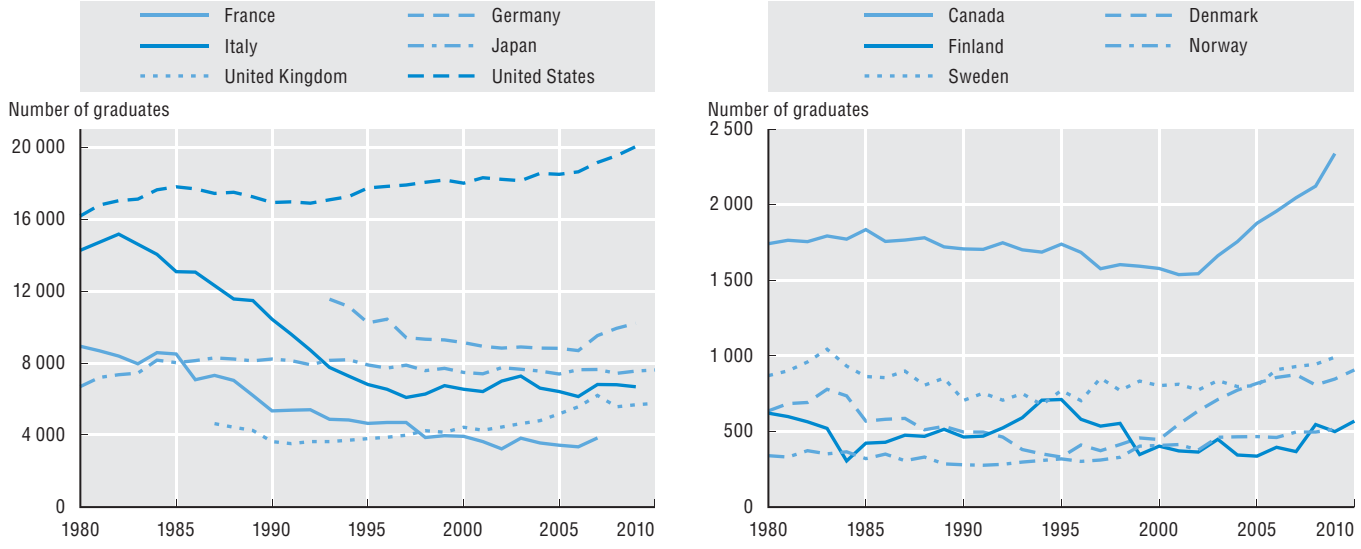
3.3.2 Medical graduates per 1 000 physicians, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524127

3.3.3 Absolute number of medical graduates, selected OECD countries, 1980 to 2010



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524146

3.4. Remuneration of doctors (general practitioners and specialists)

The remuneration level of doctors is, to a certain extent, related to the overall level of economic development of a country, but there are nevertheless significant variations in their remuneration compared with the average wage in each country. The structure of remuneration for different categories of doctors also has an impact on the financial attractiveness of different medical specialties. In many countries, governments influence the level and structure of physician remuneration directly as a key employer of physicians or as a purchaser of services, or indirectly through regulation.

OECD data on physician remuneration distinguishes between salaried and self-employed physicians, although in some countries this distinction is increasingly blurred, as some salaried physicians are allowed to have a separate practice and some self-employed doctors may receive part of their remuneration through salaries. A distinction is also made between general practitioners and all other medical specialists combined, though there may be wide differences in the income of different medical specialties.

As expected for highly-skilled professionals, the remuneration of doctors (both generalists and specialists) is much higher than that of the average worker in all OECD countries (Figure 3.4.1). Self-employed general practitioners in Australia earned 1.7 times the average wage in 2008, whereas in Germany, self-employed GPs earned 3.7 times the average wage in 2007. In the United Kingdom, self-employed GPs earned 3.6 times the average wage in 2008. The income of self-employed GPs in the United Kingdom rose strongly following the implementation of a new contract for generalists in 2004 that was designed to increase their income as well as quality of primary care (Fujisawa and Lafortune, 2008).

The income of specialists varied from 1.6 times the average wage for salaried specialists in Hungary to 5.5 times for self-employed specialists in the Netherlands in 2007. In the Czech Republic, salaried specialists earned 1.8 times the average wage while self-employed specialists earned almost two times more.

In all countries except the United Kingdom, GPs earn less than all medical specialists combined. In Canada, self-employed specialists earned 4.7 times the average wage in 2008, compared with 3.1 times for GPs. In France, self-employed specialists earned 3.2 times the average wage, compared with 2.1 times for GPs (the income of both specialists and GPs are underestimated in France – see box on "Definition and comparability"). The income gap between GPs and specialists is particularly large in Australia, although it has narrowed slightly in recent years.

In many OECD countries, the income gap between general practitioners and specialists has widened over the past decade, reducing the financial attractiveness of general practice. The remuneration of specialists has risen faster than that of general practitioners in countries such as Finland, France and Ireland. On the other hand, in the Netherlands, the gap has narrowed slightly, as the income of GPs grew faster than that of specialists (Figure 3.4.2).

Definition and comparability

The remuneration of doctors refers to average *gross* annual income, including social security contributions and income taxes payable by the employee. It should normally include all extra formal payments, such as bonuses and payments for night shifts, on-call and overtime, and exclude practice expenses for self-employed doctors.

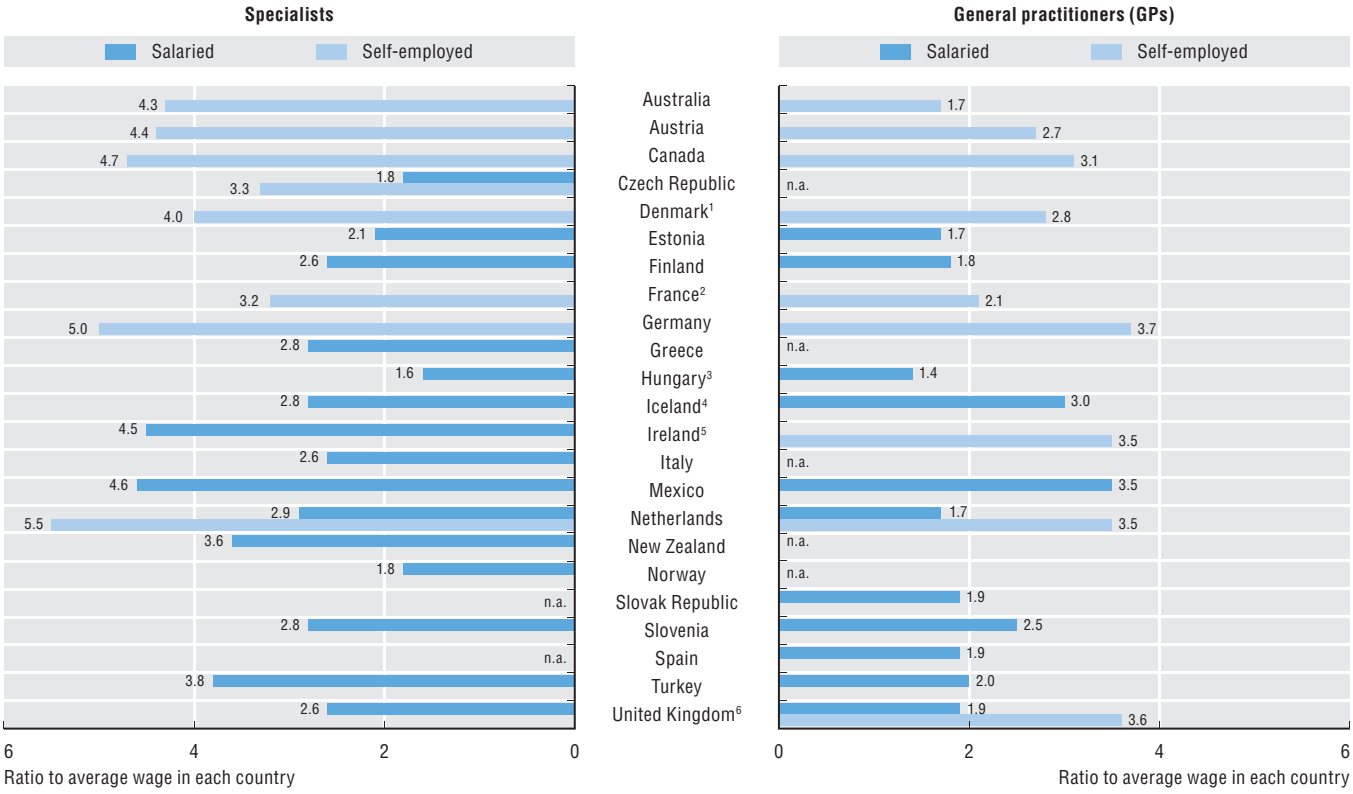
A number of data limitations contribute to an underestimation of remuneration levels in some countries: 1) payments for overtime work, bonuses, other supplementary income or social security contributions are excluded in some countries (Austria, Ireland for salaried specialists, Italy, New Zealand, Norway, Portugal, the Slovak Republic, Slovenia and Sweden); 2) incomes from private practices for salaried doctors are not included in some countries (*e.g.* the Czech Republic, Hungary, Iceland and Portugal); 3) informal payments, which may be common in certain countries (*e.g.* Hungary and Greece), are not included; 4) in Hungary, Mexico, Denmark and the Slovak Republic, data relate only to public sector employees who tend to earn less than those working in the private sector; and 5) in France, the data relate to net income rather than gross income.

The data for some countries (Australia, Austria, the Netherlands, the United States, and the United Kingdom for specialists) include part-time workers, while in other countries the data refer only to doctors working full-time. In Ireland, the data for self-employed GPs include practice expenses, resulting in an over-estimation.

The income of doctors is compared to the average wage of full-time employees in all sectors in the country, except in Iceland, Mexico and New Zealand where it is compared to the average wage in selected industrial sectors.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

3.4.1 Doctors' remuneration, ratio to average wage, 2009 (or nearest year)

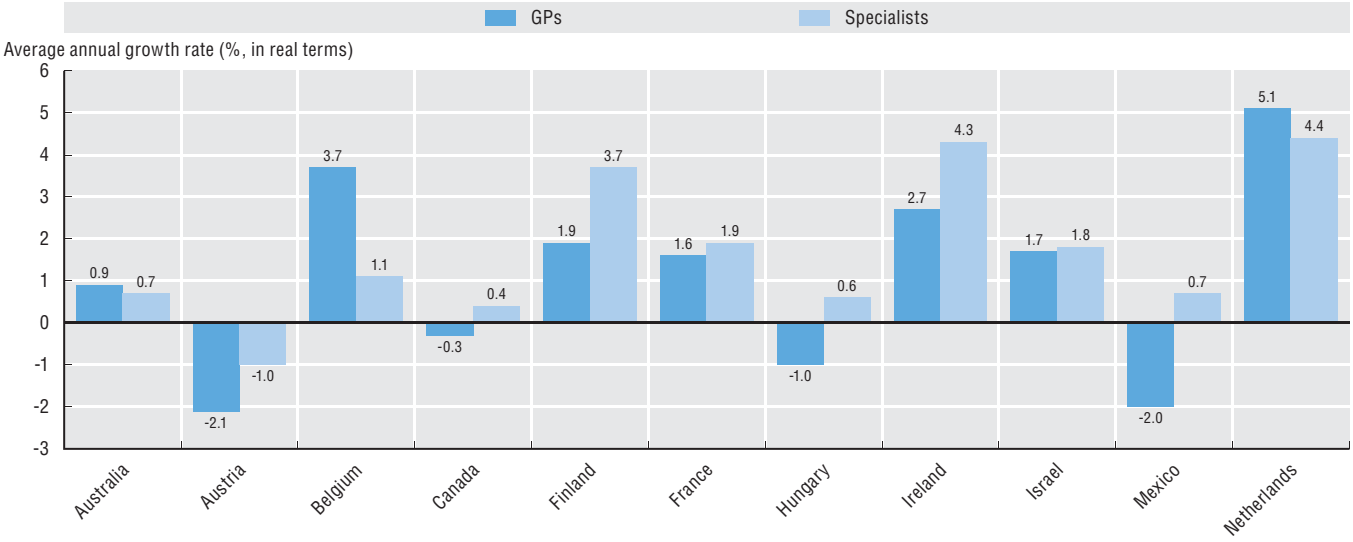


1. Data for self-employed specialists is for 2008.
2. Remuneration is net income rather than gross income resulting in an underestimation.
3. Data on salaried doctors relate only to public sector employees who tend to receive lower remuneration than those working in the private sector.
4. Many specialists working in hospitals also earn incomes from private practices which are not included.
5. Data for self-employed GPs include practice expenses resulting in an over-estimation.
6. Remuneration of GPs is for 2008.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524165

3.4.2 Growth in the remuneration of GPs and specialists, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524184

3.5. Gynaecologists and obstetricians, and midwives

Gynaecologists are concerned with the functions and diseases specific to women, especially those affecting the reproductive system, while obstetricians specialise in pregnancy and childbirth. A doctor will often specialise in both these areas, and the data reported in this section does not distinguish between the two. Midwives provide care and advice to women during pregnancy, labour and childbirth and the post-natal period. They deliver babies working independently or in collaboration with doctors and nurses.

In countries with a medicalised approach to pregnancy, obstetricians provide the majority of care. Where a less medicalised approach exists, trained midwives are the lead professional, often working in collaboration with other health professionals such as general practitioners, although obstetricians may be called upon if complications arise. Regardless of the different mix of providers across countries, the progress achieved over the past few decades in the provision of pre-natal advice and pregnancy surveillance, together with progress in obstetrics to deal with complicated births, has resulted in major reductions in perinatal mortality in all OECD countries.

In 2009, the number of gynaecologists and obstetricians per 100 000 women was the highest in the Czech Republic, Greece, Italy and the Slovak Republic (Figure 3.5.1). These are all countries where obstetricians are given a primary role in providing pre-natal and childbirth care. It was the lowest in Ireland, New Zealand, Canada and Japan.

Since 2000, the number of gynaecologists and obstetricians per 100 000 women has increased in most countries, with an average growth rate of 1.5% per year during that period. The number of gynaecologists and obstetricians has remained relatively stable in Estonia and France, while it declined significantly in Japan and Poland (Figure 3.5.1).

The number of midwives per 100 000 women was highest in Australia, Iceland and Sweden in 2009 (Figure 3.5.2). Iceland and Sweden have traditionally had a large number of midwives assuming primary responsibility for pre-natal care and normal delivery (Johanson, 2002). On the other hand, the number of midwives per capita is the lowest in Canada, Korea and Slovenia. While the number of midwives per women has increased in Canada and Slovenia over the past decade, it has fallen in Korea. This decline has coincided with a continued reduction in fertility rates in Korea. In Estonia and Hungary, the number of midwives per capita also decreased between 2000 and 2009. In Hungary, most of the reduction occurred between 2006 and 2007, as the number of beds in maternity wards was cut by more than one-third in the context of a health reform.

In the Netherlands, the number of midwives has been growing faster than the number of gynaecologists and obstetricians over the past decade and the number of births in hospitals attended by midwives rose from 8% in 1998 to 26% in 2007 (Wiegers and Hukkelhoven, 2010).

The relative mix of providers has both direct and indirect implications for the costs of pre-natal and natal services. Services involving midwives are likely to be cheaper. This reflects in part the lower training time and hence a lower compensating pay for midwives in comparison to gynaecologists and obstetricians. Additionally, obstetricians may be inclined to provide more medicalised services. A study of nine European countries found that the cost of delivery is lower in those countries and hospitals that employ more midwives and nurses than obstetricians (Bellanger and Or, 2008).

There is little evidence that systems that rely more on midwives are less effective. A review of a number of studies finds that midwife-led models of care resulted in fewer complications (Hatem *et al.*, 2008). Another review found that midwives are equally effective in providing pre-natal care and advice in the case of normal pregnancies (Di Mario *et al.*, 2005), although support from obstetricians is required for complications.

Definition and comparability

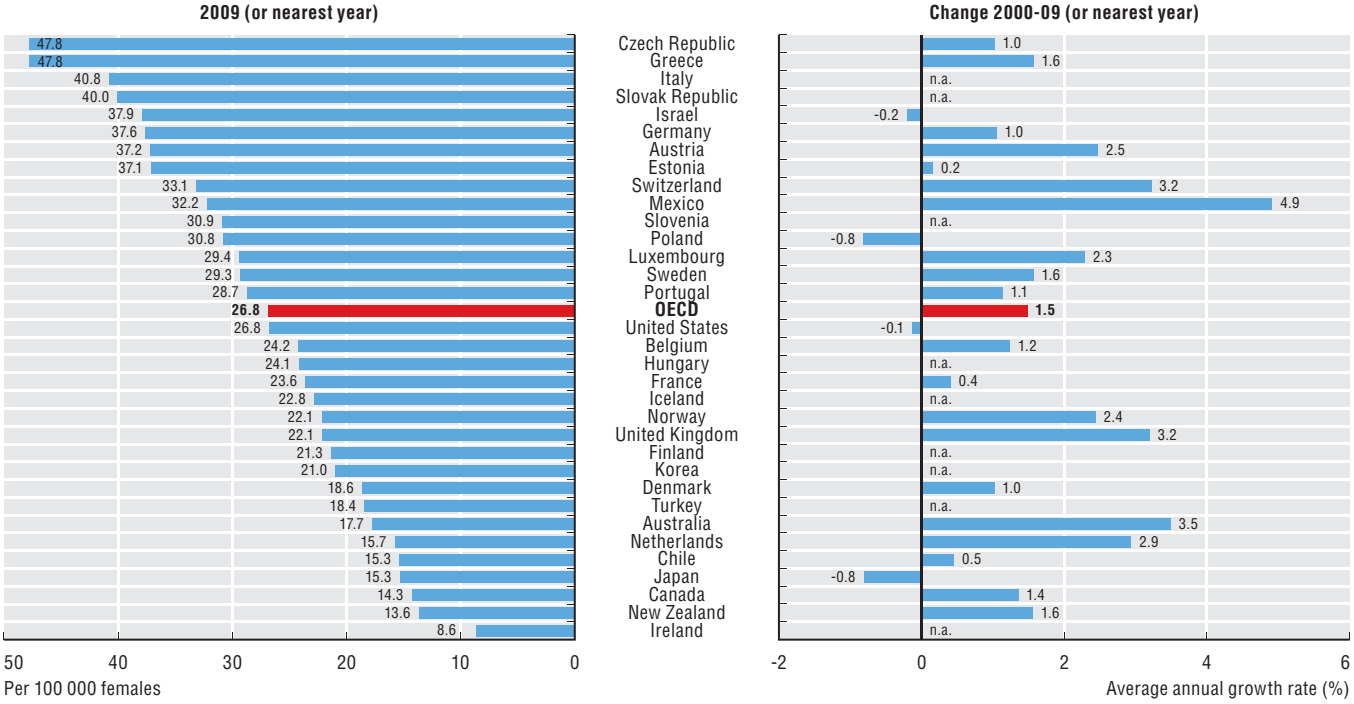
The number of gynaecologists and obstetricians combines these two specialities.

The figures for gynaecologists and obstetricians, and for midwives, are presented as head counts, not taking into account full-time or part-time status.

The number of midwives in Canada may be understated, as they may undercount the number of personnel actively practicing midwifery in provinces/territories where there is no regulation requiring licensure as a condition of practice. In Austria, the number of midwives only includes those employed in hospital, resulting in an under-estimation of 40 to 50%.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

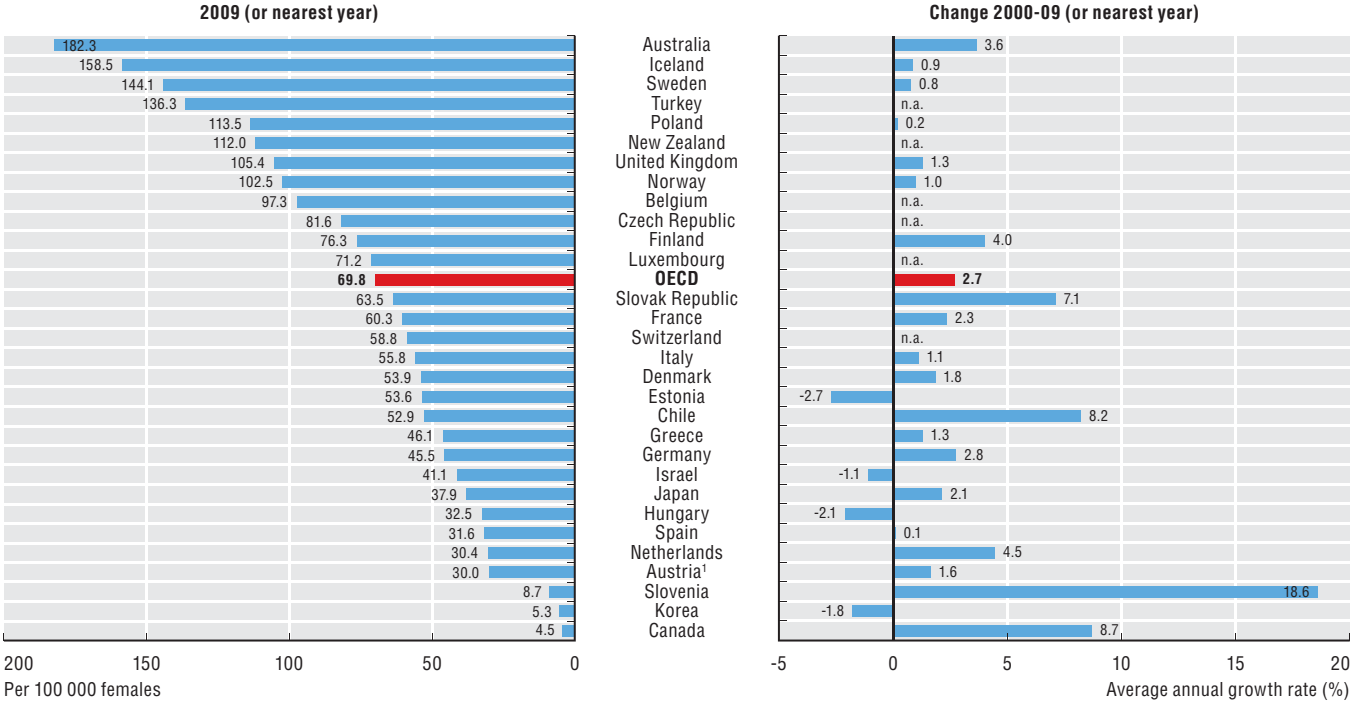
3.5.1 Gynaecologists and obstetricians per 100 000 females, 2009 and change between 2000 and 2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524203

3.5.2 Midwives per 100 000 females, 2009 and change between 2000 and 2009



1. In Austria, the number of midwives only includes those employed in hospital.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524222

3.6. Psychiatrists

At any point in time, about 10% of the adult population will report having some type of mental or behavioural disorder (WHO, 2001). People with mental health problems may receive help from a variety of professionals, including general practitioners, psychiatrists, psychologists, psychotherapists, social workers, specialist nurses and others. This section focuses on one category of mental health service provider, psychiatrists, as the availability of comparable data on others, such as psychologists, is more limited. Psychiatrists are responsible for diagnosing and treating a variety of serious mental health problems, including depression, learning disabilities, alcoholism and drug addiction, eating disorders, and personality disorders such as schizophrenia.

In Europe, a population-based survey carried out in 2010 indicated that, on average across EU countries, 15% of the population reported seeking help from a health professional for a psychological or emotional health problem over the past year (Eurobarometer, 2010). Among the people who sought help, almost three quarters (73%) had consulted a general practitioner, while 11% sought help from a psychiatrist and another 14% from a psychologist (Figure 3.6.2).

In 2009, the number of psychiatrists in most OECD countries was between 10 and 20 per 100 000 population. The number was by far the highest in Switzerland with 42 per 100 000 population, followed by several Nordic countries (Iceland, Norway, Finland and Sweden) and France with between 21 and 23 psychiatrists per 100 000 population. In Mexico, Turkey, Chile, Korea and Poland, there were less than 10 psychiatrists per 100 000 population (Figure 3.6.1).

The number of psychiatrists per capita has increased since 2000 in most OECD countries for which data are available. Across these OECD countries, the average annual growth rate was just over 2% between 2000 and 2009. The rise has been particularly rapid in Poland, Switzerland, Austria and the United Kingdom. There was a slight decrease in the number of psychiatrists per capita during this time period in Israel, France and the United States (Figure 3.6.1).

As is the case for many other medical specialties, psychiatrists may be unevenly distributed across regions within each country, with some regions being underserved. For example, in Australia, the number of psychiatrists per capita is 4.6 times greater in major cities than in remote regions (AIHW, 2010a).

The role of psychiatrists varies across countries. For example, in Spain, psychiatrists work in close co-operation with general practitioners (GPs). Hence, although the number of psychiatrists is relatively low, consultation rates of psychiatrists by people with mental disorders are higher than in many other countries that have more psychiatrists, because of higher referral rates from their GPs (Kovess-Masfety *et al.*, 2007).

The role of other mental health service providers such as psychologists also varies across countries. For instance, in the Netherlands, there is a high number of psychologists who are very active in providing services that are covered under health insurance systems. In other countries such as France, the number of psychologists is lower and the services that they provide are not covered under public health insurance (Kovess-Masfety *et al.*, 2007).

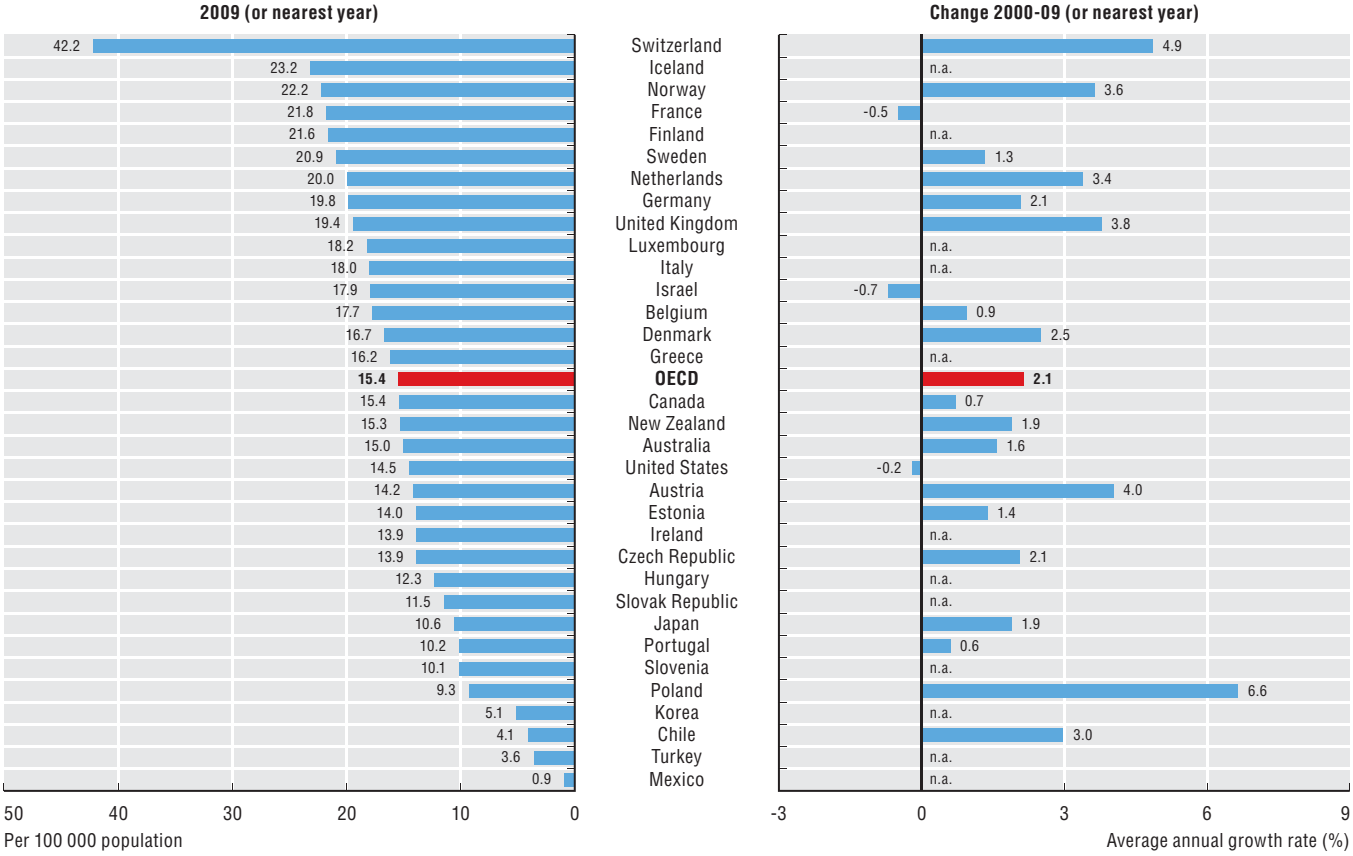
Definition and comparability

Psychiatrists are medical doctors who specialise in the prevention, diagnosis and treatment of mental illness. They have post-graduate training in psychiatry, and may also have additional training in a psychiatric specialty, such as neuropsychiatry or child psychiatry. Psychiatrists can prescribe medication, which psychologists cannot do in most countries.

The figures normally include psychiatrists, neuropsychiatrists and child psychiatrists. Psychologists are excluded. The numbers are presented as head counts, regardless of whether psychiatrists work full-time or part-time.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

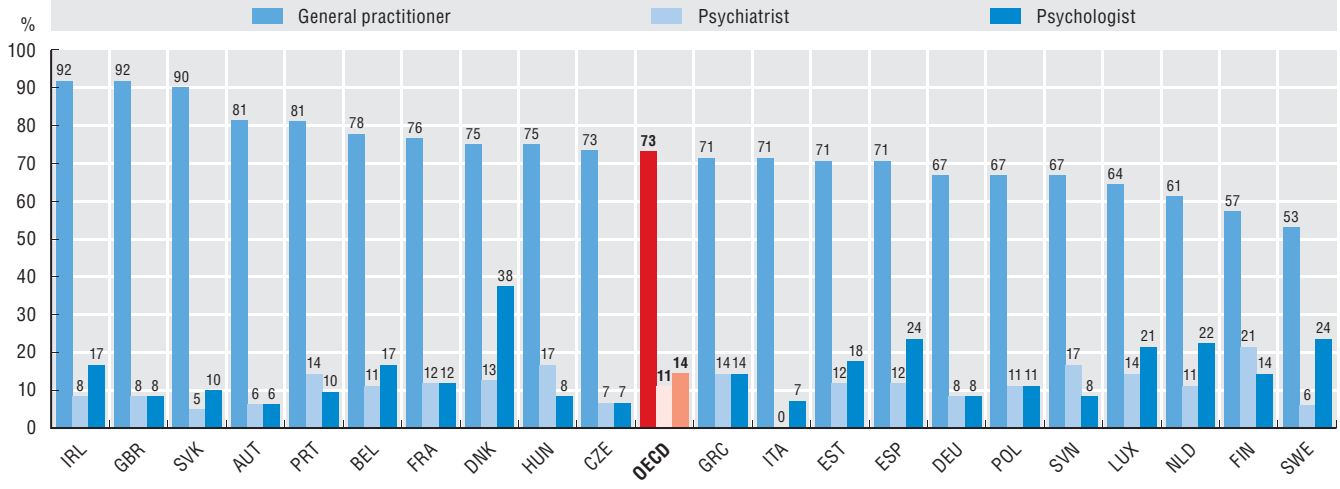
3.6.1 Psychiatrists per 100 000 population, 2009 and change between 2000 and 2009



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932524241

3.6.2 Type of provider(s) consulted for mental health problems, selected EU countries, 2010



Note: The question asked during the interview was: In the last 12 months, did you seek help from a professional because of a psychological or emotional problem? If yes, indicate who in the provided list (multiple answers possible).

Source: *Eurobarometer*, February-March 2010.

StatLink http://dx.doi.org/10.1787/888932524260

3.7. Nurses

Nurses are usually the most numerous health profession, greatly outnumbering physicians in most OECD 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 actions in many countries to increase the training of new nurses combined with efforts to increase the retention of nurses in the profession (OECD, 2008a).

On average across OECD countries, there were 8.4 nurses per 1 000 population in 2009 (Figure 3.7.1). The number of nurses per capita was highest in several Nordic countries, with 14 to 15 nurses per 1 000 population. The number is also high in Switzerland and Belgium, although the data for Belgium relate to all nurses who are licensed to practice, resulting in an overestimation. The number of nurses per capita in OECD countries was lowest in Chile (although the number is underestimated, because it only takes into account nurses working in the public sector), as well as in Turkey, Mexico and Greece. The number of nurses per capita was also low compared with the OECD average in major emerging economies, such as India, Brazil, Indonesia and China, where there were fewer than 1.5 nurses per 1 000 population in 2009, although numbers have been growing quite rapidly in Brazil and China in recent years (Figure 3.7.1).

The number of nurses per capita increased in almost all OECD countries over the past decade, at an average rate of 1.8% per year between 2000 and 2009. Chile saw the largest increase among OECD countries, with an increase of 12% per year, although the number of nurses per capita remains very low. The number of nurses per capita also increased rapidly in Portugal and Korea. In Israel, the number of nurses per capita declined between 2000 and 2009. It also declined in the Slovak Republic, although the recent increase in the number of new nursing graduates may lead to an increase in the coming years. In Australia and the Netherlands, the number of nurses per capita declined between 2000 and 2007, but has risen since then.

In 2009, the nurse-to-doctor ratio ranged from five nurses per doctor in Ireland to less than one nurse per doctor in Chile, Greece and Turkey (Figure 3.7.2). The number of nurses per doctor is also relatively low in Italy, Mexico, Israel, Portugal and Spain. The average across OECD countries is just below three nurses per doctor, with most countries reporting between two to four nurses per doctor. In Greece and Italy, there is evidence of an over-supply of doctors and under-supply of nurses, resulting in an inefficient allocation of resources (OECD, 2009a; Chaloff, 2008).

In response to shortages of doctors and to ensure proper access to care, some countries have developed more advanced roles for nurses. Evaluations of nurse practitioners from the United States, Canada and the United Kingdom show that advanced practice nurses can improve access to services and reduce waiting times, while delivering the same quality of care as doctors for a range of patients, including those with minor illnesses and those requiring routine follow-up. Most evaluations find a high patient satisfaction rate, while the impact on cost is either cost-reducing or cost-neutral. The implementation of new advanced nursing roles may require changes to legislation and regulation to remove any barrier to extensions in their scope of practice (Delamaire and Lafortune, 2010).

Definition and comparability

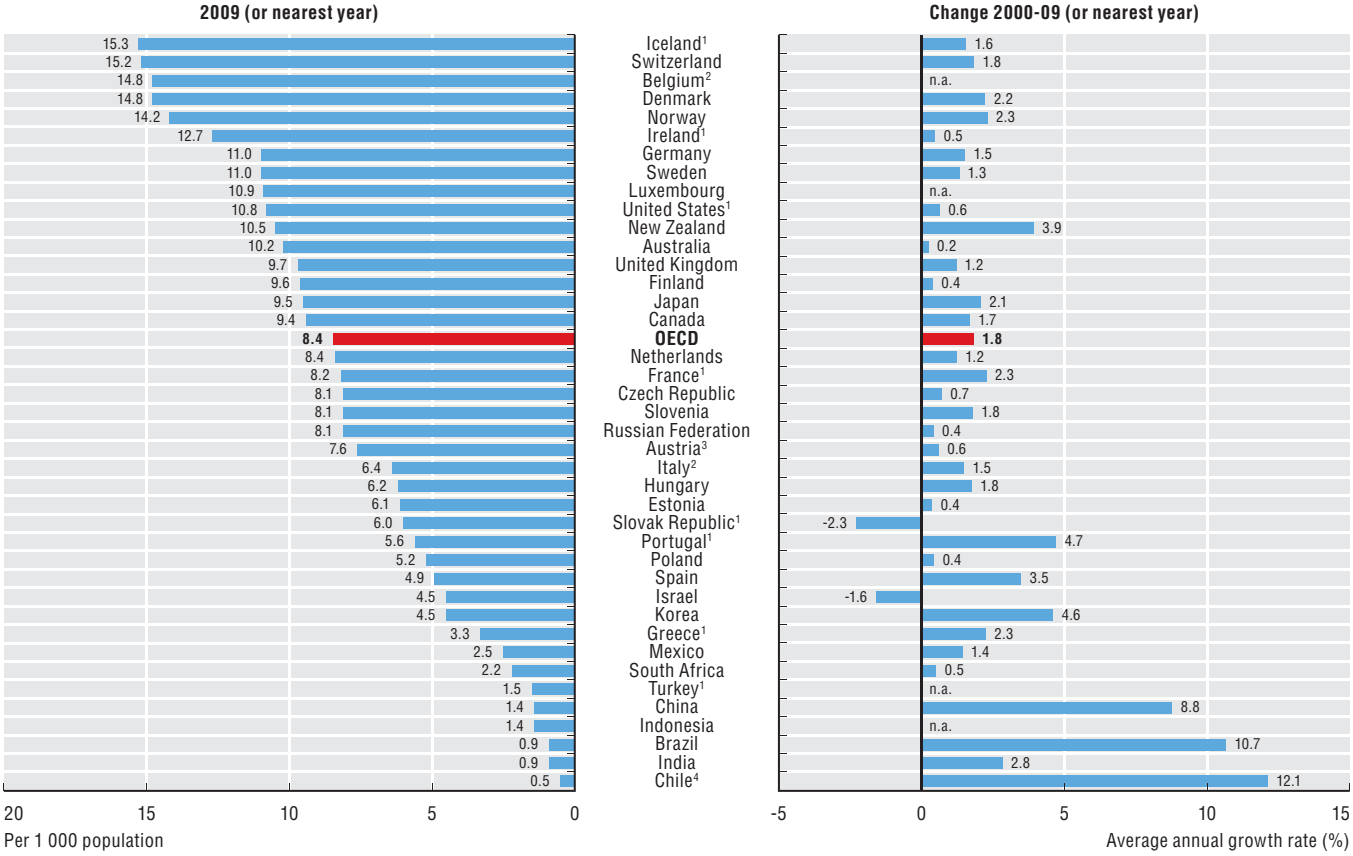
The number of nurses includes those employed in public and private settings, including the self-employed. In most countries, they refer specifically to nurses providing services directly to patients ("practising") while other countries also include those working as managers, educators or researchers.

In those 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, about half of OECD countries include midwives because they are considered as specialist nurses. Austria reports only nurses working in hospitals, resulting in an under-estimation. Chile reports only nurses working in the public sector. Data for Germany does not include about 250 000 nurses (representing an additional 30% of nurses) who have three years of education and are providing services for the elderly.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

3.7.1 Practising nurses per 1 000 population, 2009 and change between 2000 and 2009

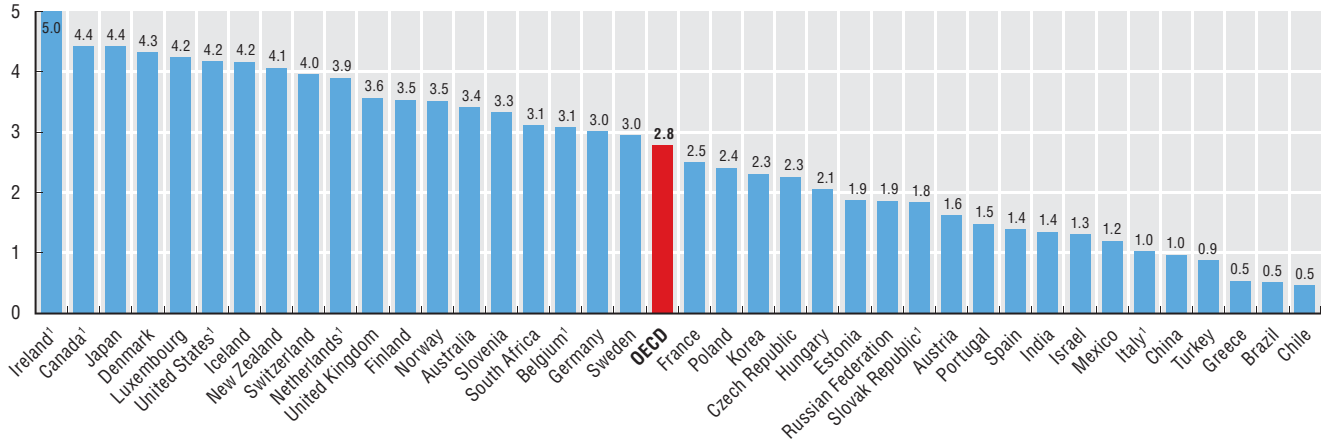


1. Data include not only nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc.
2. Data refer to all nurses who are licensed to practice.
3. Austria reports only nurses employed in hospitals.
4. Chile includes only nurses working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

Source: OECD Health Data 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932524279

3.7.2 Ratio of nurses to physicians, 2009 (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 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932524298

3.8. Nursing graduates

Many OECD countries have taken steps in recent years to expand the number of students in nursing education programmes in response to concerns about current or anticipated shortages of nurses. Increasing investment in nursing education is particularly important as the nursing workforce is ageing in many countries and the baby boom generation of nurses approaches retirement.

In 2009, there were 39 newly graduated nurses per 100 000 population on average across OECD countries, up from 36 in 2007 (Figure 3.8.1). The number was by far the highest in the Slovak Republic, with 152 graduates per 100 000 population. Since 2006, the number of nursing graduates in the Slovak Republic has more than doubled, rising from 3 732 graduates in 2006 to over 8 000 in 2009. Nurse graduation rates have traditionally been low in Turkey, Chile, Greece and Italy, four countries which report a relatively low number of nurses per capita. In Luxembourg, nurse graduation rates are also low, but many nurses are foreign-trained.

The institutional arrangements for nursing education differ across OECD countries. In some countries, the number of students admitted in nursing programmes is not limited. This is the case in Belgium, Chile, the Netherlands, Norway, New Zealand and the United States, although in this latter case State decisions on public funding for nursing education have a direct impact on the capacity of nursing schools to admit students. In most countries, however, entry into nursing programmes is regulated (OECD, 2008a).

The expansion of nursing education is also visible in the number of graduates per 1 000 practising nurses (Figure 3.8.2). There were 58 nurse graduates per 1 000 employed nurses on average in OECD countries in 2009, up from an average of 42 in 2007. The number of new graduates per practising nurses was highest in the Slovak Republic, Korea and Chile, although in the latter two countries this is partly explained by the relatively low number of nurses. The number of new graduates per practising nurses is the lowest in Luxembourg, which is compensated by the import of nurses trained in other countries.

The number of nursing graduates has increased in many OECD countries over the last decade. This has been the case, for instance, in France where the number increased by 60% between 2000 and 2009, and Switzerland where the number went up by 27% over the same period (Figure 3.8.3).

In Italy, concerns about current and future shortages of nurses have led to a significant increase in student intake in university nursing programmes in recent years, resulting in a rise in the number of newly-graduated nurses from less than 6 000 in 2002 to almost 11 000 in 2009. Nonetheless, this may not be sufficient to meet demand, given that the number of nurses leaving the profession annually was estimated to be in the range of 13 000 to 17 000 (Chaloff, 2008).

In Japan, the number of nursing graduates declined slightly between 2000 and 2006. However, this trend has been reversed since 2006, and a growing number of graduates is expected in the years ahead.

The impact of the expansion of nursing education on the supply of nurses depends on other workforce policies as well. Policy changes, such as efforts to retain nurses in the workforce longer by offering them better pay and working conditions may ensure that the investment in training a larger number of nurses pays off (Buchan and Black, 2011).

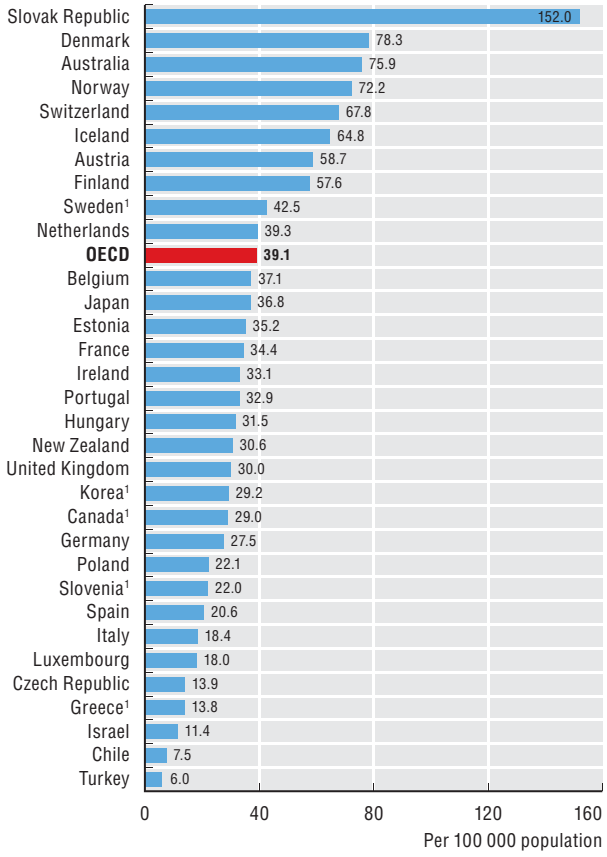
Definition and comparability

Nursing graduates refer to the number of students who have obtained a recognised qualification required to become a licensed or registered nurse. They include graduates from both higher level and lower level nursing programmes.They exclude graduates from Masters or PhD degrees in nursing to avoid double-counting nurses acquiring further qualifications.

The numbers reported by Canada, Greece, Korea, Slovenia and Sweden do not include graduates from lower level nursing programmes, nor are graduates from three-year education programmes focusing on elderly care included in Germany, resulting in an under-estimation in graduation rates per capita. However, the calculation of graduation rates per practising nurses includes the same categories of nurses in the numerator and the denominator to avoid any under-estimation. The United Kingdom data excludes nursing graduates from overseas.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

3.8.1 Nursing graduates per 100 000 population, 2009 (or nearest year)

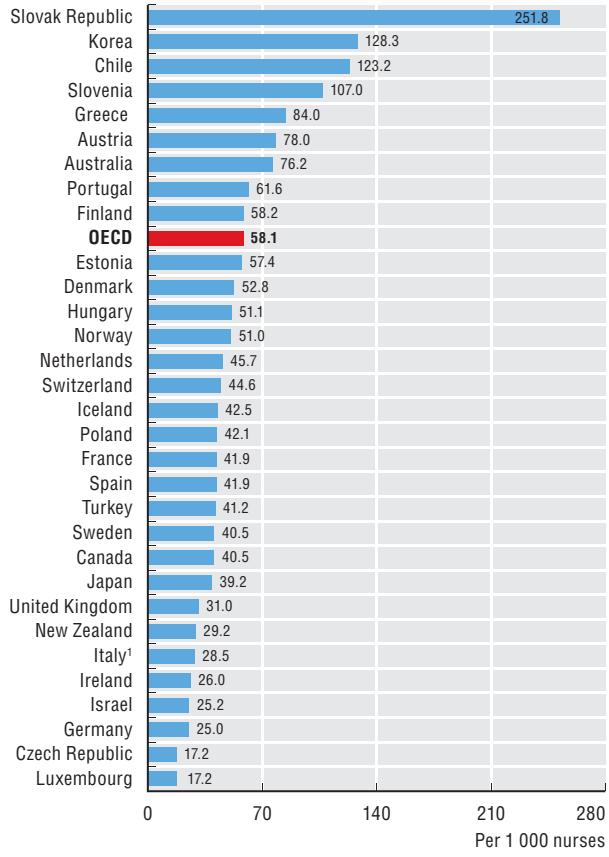


1. The number of graduates does not include graduates from lower level nursing programmes, resulting in an under-estimation.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524317

3.8.2 Nursing graduates per 1 000 nurses, 2009 (or nearest year)



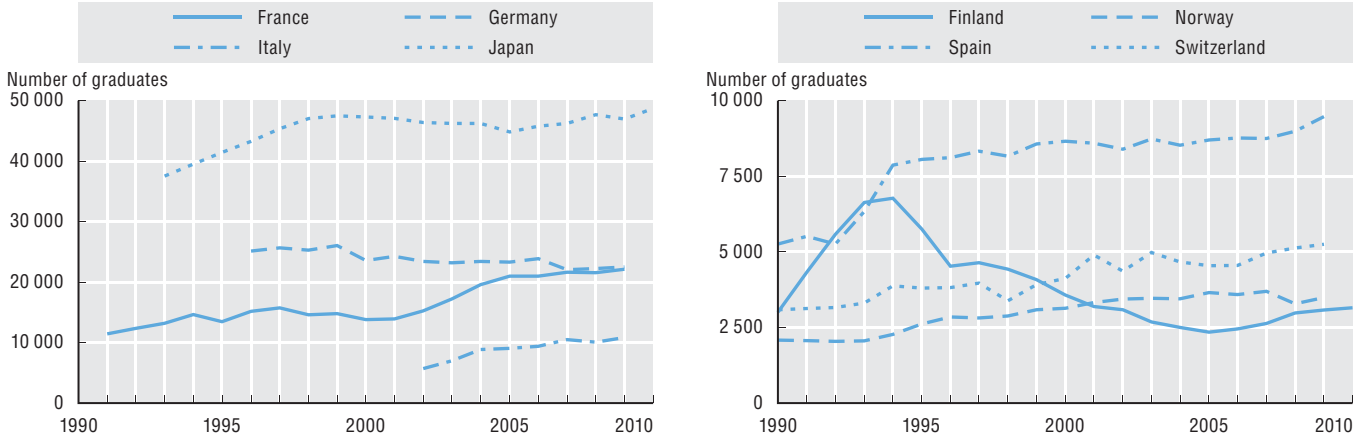
Note: The categories of nurses included in the denominator are the same as the graduate numbers included in the numerator.

1. The denominator data include all nurses licensed to practice.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524336

3.8.3 Absolute number of nursing graduates, selected OECD countries, 1990 to 2010



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524355

3.9. Remuneration of nurses

The remuneration level of nurses is one of the factors affecting job satisfaction and the attractiveness of the profession. It also has a direct impact on costs, as wages represent one of the main spending items in health systems.

Gathering comparable data on the remuneration of nurses is difficult because different countries collect data based on different sources, covering different categories of nurses. The data presented in this section generally focus on the remuneration of nurses working in hospitals, although the data coverage differs for some countries (see the box on "Definition and comparability").

The data are presented in two ways. First, it is compared with the average wage of all workers in each country, providing some indication of the relative financial attractiveness of nursing compared to other occupations. Second, the remuneration level in each country is converted into a common currency, the US dollar, and adjusted for purchasing power parity, to provide an indication of the relative economic well-being of nurses compared with their counterparts in other countries.

In most countries, the remuneration of hospital nurses was at least slightly above the average wage of all workers in 2009. In Mexico, the income of nurses was 2.4 times greater than the average wage. In New Zealand and Luxembourg, it was 50% and 40% higher, while in the United States it was 30% greater than the average wage. However, in other countries, the salary of hospital nurses is roughly equal to the average wage in the economy, while in the Slovak Republic and Hungary it is lower (Figure 3.9.1).

When converted to a common currency, the remuneration of nurses was about four to five times higher in Luxembourg than in Hungary, the Slovak Republic, Estonia and the Czech Republic (Figure 3.9.2). Nurses in the United States also had relatively high earnings compared with their counterparts in other countries. This partly explains the ability of the United States to attract many nurses from other countries (Aiken and Cheung, 2008). In Mexico, although the salary of nurses appears to be high compared to other workers in the country, their wage level is low compared to nurses in the United States and other countries.

The remuneration of nurses in real terms (taking into account inflation) has increased in all OECD countries over the past decade, with the exception of Hungary, where it remained unchanged between 2003 and 2009. The growth was particularly strong in the Slovak Republic and the Czech Republic, narrowing the gap to a certain extent with their counterparts in other European countries. In these two countries, as well as in New Zealand, the United States, Australia and Canada, the wages of nurses also grew significantly faster than that of other workers, making the profession financially more attractive (Figure 3.9.3).

Concerns about the competitiveness of nurses' pay, pay equity, and shortages or uneven geographic distribution of nurses motivated pay interventions in some countries in recent years. Between 2006 and 2009, the Czech Republic, Finland, New Zealand and the United Kingdom implemented some pay increases for certain categories of nurses. These pay increases led to increased numbers of applicants into nursing education, but the impact on nurses already in work is more difficult to assess, as their labour market participation is also affected by the complex interaction of other aspects such as working environment and working conditions, career possibilities and individuals' priorities (Buchan and Black, 2011). In Iceland, cutbacks in nurse remuneration in response to the economic crisis have led nurses to increase their regular working time, while their overtime work was reduced (Friðfinnsdóttir and Jónsson, 2010).

Definition and comparability

The remuneration of nurses refers to average *gross* annual income, including social security contributions and income taxes payable by the employee. It should normally include all extra formal payments, such as bonuses and payments for night shifts and overtime. In most countries, the data relate specifically to nurses working in hospitals, although in Canada, New Zealand and the United States the data also cover nurses working in other settings. In some federal states, such as Canada, the level and structure of nurse remuneration is determined at the sub-national level, which may contribute to variations across jurisdictions.

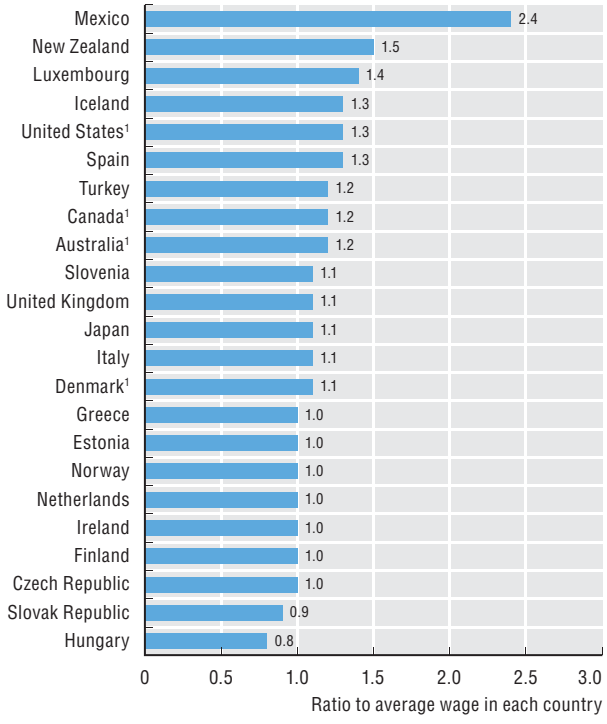
Data refer only to registered ("professional") nurses in Australia, Canada, Denmark and the United States, resulting in an overestimation compared to other countries where lower-level nurses ("associate professional") are also included.

The data relate to nurses working full-time, with the exception of Belgium where part-time nurses are also included (resulting in an under-estimation). The data for some countries do not include additional income such as overtime payments and bonuses (*e.g.* Italy, Portugal and Slovenia). Informal payments, which in some countries represent a significant part of total income, are not reported.

The remuneration of nurses is compared to the average wage of full-time employees in all sectors in the country, except in Iceland, Mexico and New Zealand where it is compared to the average wage in selected industrial sectors.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

3.9.1 Hospital nurses' remuneration, ratio to average wage, 2009 (or nearest year)

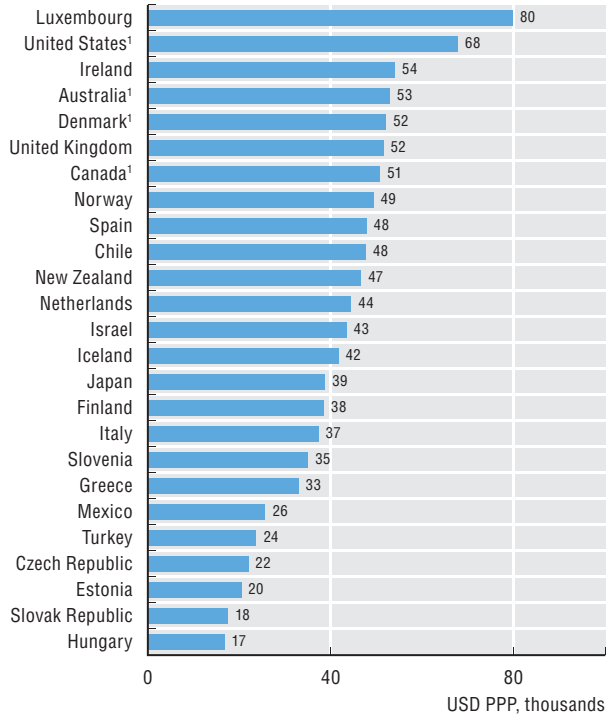


1. Data refer to registered ("professional") nurses in the United States, Canada, Australia and Denmark resulting in an over-estimation.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524374

3.9.2 Hospital nurses' remuneration, USD PPP, 2009 (or nearest year)

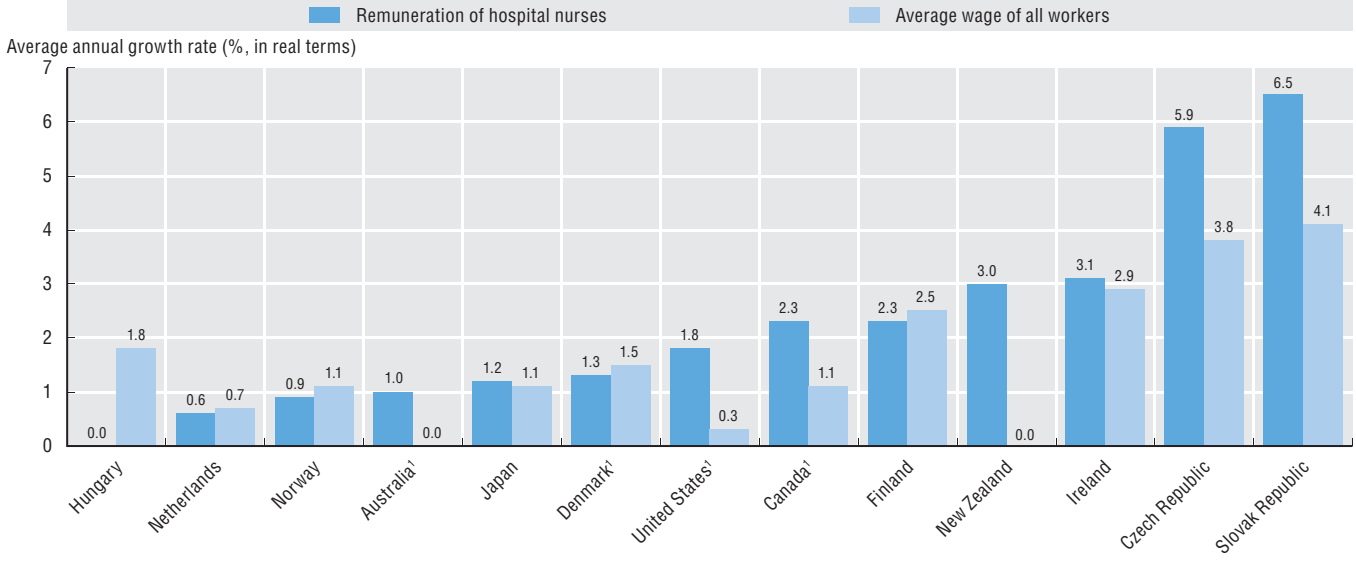


1. Data refer to registered ("professional") nurses in the United States, Canada, Australia and Denmark resulting in an over-estimation.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524393

3.9.3 Growth in the remuneration of hospital nurses, 2000-09 (or nearest year)



1. Data refer to registered ("professional") nurses in the United States, Canada, Australia and Denmark.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524412

4. HEALTH CARE ACTIVITIES

4.1. Consultations with doctors

4.2. Medical technologies

4.3. Hospital beds

4.4. Hospital discharges

4.5. Average length of stay in hospitals

4.6. Cardiac procedures (coronary angioplasty)

4.7. Hip and knee replacement

4.8. Treatment of renal failure (dialysis and kidney transplants)

4.9. Caesarean sections

4.10. Cataract surgeries

4.11. Pharmaceutical consumption

4.1. Consultations with doctors

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) "gatekeeper" 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, Iceland, Japan and Korea), patients may approach specialists directly.

The number of doctor consultations per person per year ranges from 13 in Japan and Korea, and over 11 in the Czech Republic, Hungary and the Slovak Republic, to less than 3 in Chile, Mexico and Sweden (Figure 4.1.1). The OECD average is 6.5 consultations per person per year. Cultural factors appear to play a role in explaining some of the variations across countries, but certain characteristics of health systems may also play a role. Countries which pay their doctors mainly by fee-for-service tend to have above-average consultation rates (*e.g.* Japan and Korea), while countries with mostly salaried doctors tend to have below-average rates (*e.g.* Mexico and Sweden). However, there are examples of countries, such as Switzerland and the United States, where doctors are paid mainly by fee-for-service and where consultation rates are also below average, suggesting that other factors also play a role. (See Table A.5 in Annex A for more information on the mode of payments of doctors in each country.)

In Sweden, the low number of doctor consultations may 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).

The average number of doctor consultations per person has increased in a majority of OECD countries since 2000 (Figure 4.1.1). The rise was particularly strong in Korea and Switzerland. In Korea, this rise can be at least partly explained by the rapid increase in the number of physicians over the past decade (see Indicator 3.2 "Medical doctors"). In the Slovak Republic, the number of doctor consultations fell by over 2% per year since 2000 at a time when the number of doctors per capita was also falling. In Canada, the number of consultations per person also decreased, but this can be attributed to the reduction in the proportion of consultations paid through fee-for-services, the only consultations identified and reported here.

The same information can be used to estimate annual numbers of consultations per doctor in OECD countries. This should not be taken as a measure of doctors' productivity, since consultations can vary in length and effectiveness, and because it excludes the work doctors do on hospital inpatients, administration and research. There are other comparability limitations reported in the box on "Definition and comparability". Keeping these reservations in mind, this estimate varies greatly across OECD countries (Figure 4.1.2). Again, it is possible that some cultural factors play a part, because there is clustering of the two OECD Asian countries and the central and eastern European countries at the top of the ranking.

While the average number of doctor consultations per capita varies greatly across OECD countries, there are also significant differences among population groups within each country. Chapter 6 on "Access to Care" provides additional information on disparities in doctor consultations by income group in a number of countries (Indicator 6.5 "Inequalities in doctor consultations").

Definition and comparability

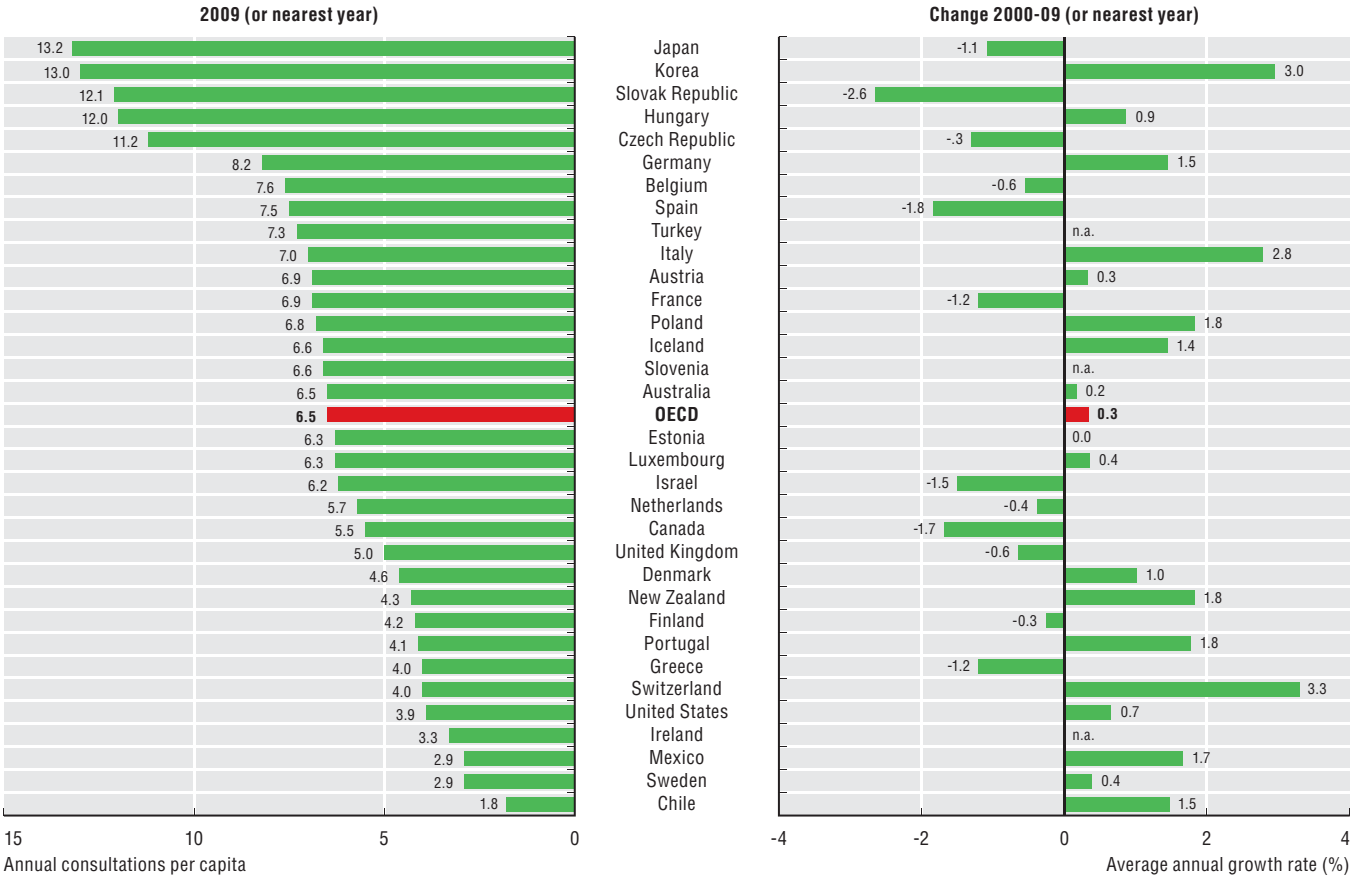
Consultations with doctors refer to the number of contacts with physicians (both generalists and specialists). There are variations across countries in the coverage of different types of consultations, notably in outpatient departments of hospitals.

The data come mainly from administrative sources, although in some countries (Ireland, Israel, Italy, the Netherlands, Spain, Switzerland, New Zealand 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, while those for the United Kingdom exclude consultations with specialists outside hospital outpatient departments. In Luxembourg, consultations with doctors located outside the country are not included (these consultations account for a higher number than in other countries). The data for Canada only include consultations paid on a fee-for-service basis. 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 for several countries (*e.g.* the Czech Republic, Ireland, Spain and the United Kingdom).

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

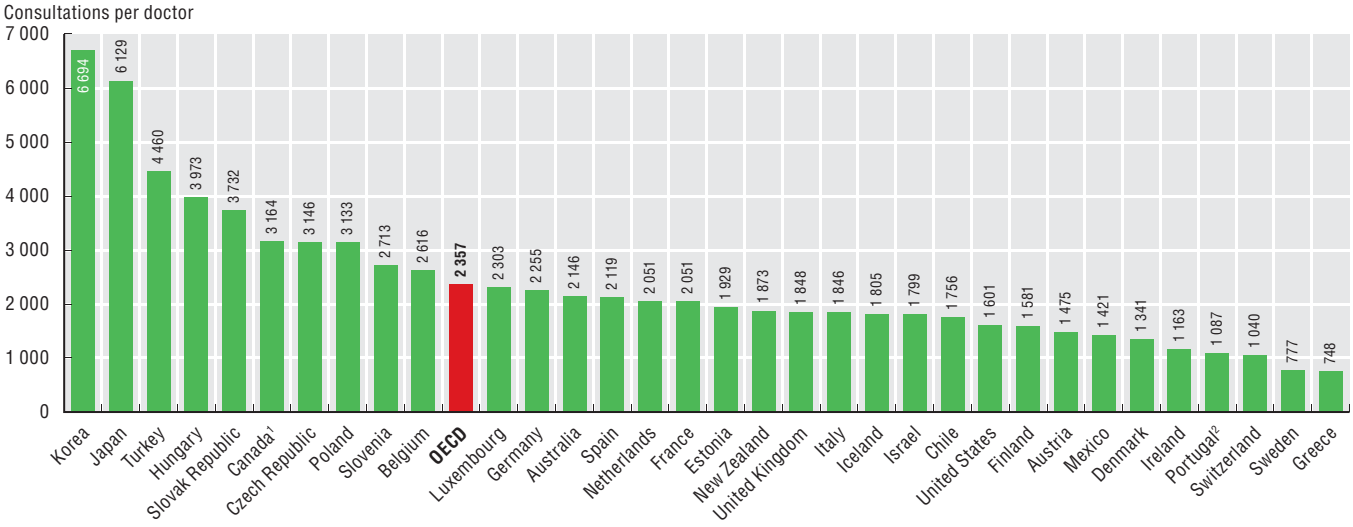
4.1.1 Doctors consultations per capita, 2009 and change between 2000 and 2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524431

4.1.2 Estimated number of consultations per doctor, 2009 (or nearest year)



1. In Canada, the number of doctors only includes those paid fee-for-services to be consistent with the data on consultations.
2. Data for the denominator include all doctors licensed to practice (resulting in an underestimation in the number of consultations per doctor).

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524450

4.2. Medical technologies

Progress in medical technologies continues to transform health care delivery and to improve life expectancy and quality of life, but it is also one of the main drivers of rising health expenditure across OECD countries. 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 cross-sectional views of the inside of the body. Unlike conventional radiography and CT scanning, newer imaging technology used in MRI units does not expose patients to ionising radiation which may cause damage in living tissue.

The availability of CT scanners and MRI units has increased rapidly in most OECD countries over the past two decades. Japan has, by far, the highest number of MRI and CT scanners per capita, followed by the United States for MRI units and by Australia for CT scanners (Figures 4.2.1 and 4.2.2). At the other end of the scale, the number of MRI units and CT scanners were the lowest in Mexico, Hungary and Israel.

Data on the use of MRI and CT scanners are available for a smaller group of countries, excluding Japan. Based on this more limited country coverage, the number of MRI and CT examinations per capita is highest in Greece and the United States, followed by Luxembourg and Iceland (Figures 4.2.3 and 4.2.4).

In Greece, most CT and MRI scanners are installed in private diagnostic centres, and only a minority are found in public hospitals. There are no regulations concerning the purchase of MRI units in Greece, while the purchase of CT scanners requires a licence that is granted following a review that is based on a criterion of population density. There are also no guidelines concerning the use of CT and MRI scanners (Paris *et al.*, 2010). The current situation has led the Greek Ministry of Health and Social Solidarity to establish an expert committee to review regulations and propose new criteria for the purchase of CT and MRI scanners.

In the United States, evidence suggests that there is an overuse of CT and MRI examinations. Between 1997 and 2006, the number of scans in the United States increased dramatically while the occurrence of illnesses has remained constant (Smith-Bindman *et al.*, 2008). Furthermore, payment incentives allow doctors to benefit from exam referrals which also increase the likelihood of overuse. Many studies have attempted to assess tangible medical benefits of the substantial increase in CT and MRI examinations in the United States but have found no conclusive evidence of such benefits (Baker *et al.*, 2008).

Other OECD countries are also examining ways to promote the more rational purchase and use of diagnostic technologies (OECD, 2010b). In the United Kingdom, the National Institute for Health and Clinical Excellence set up in 2009 a Diagnostics Advisory Committee to evaluate and make recommendations for the appropriate use of diagnostic technologies within the NHS in England (NICE, 2009).

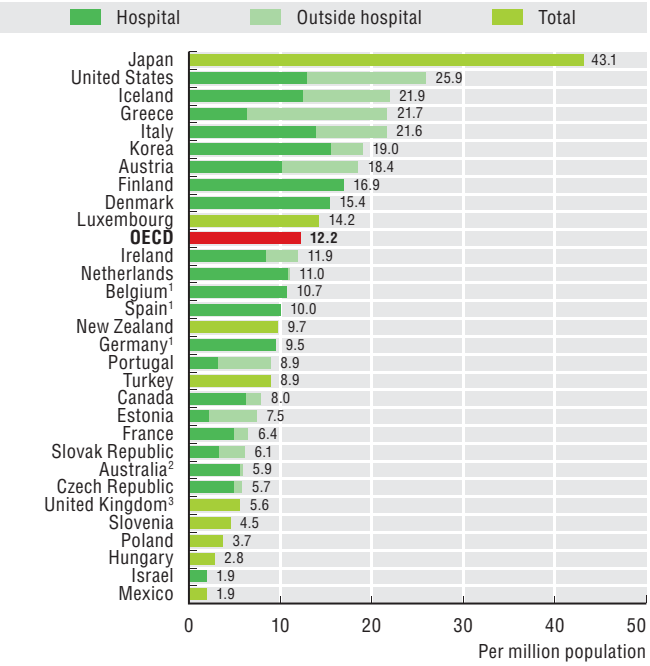
Definition and comparability

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. CT scanners and MRI units outside hospitals are not included in some countries (Belgium, Germany and Spain). For the United Kingdom, the data only include scanners in the public sector. For Australia, the number of MRI units and CT scanners includes only those eligible for reimbursement under Medicare, the universal public health system (in 1999, 60% of total MRI units were eligible for Medicare reimbursement). Also for Australia, MRI and CT exams only include those for outpatients and private inpatients (excluding those in public hospitals). MRI and CT exams for Ireland only cover public hospitals, while Korea and the Netherlands only include publicly financed exams.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

4.2.1 MRI units, 2009 (or nearest year)



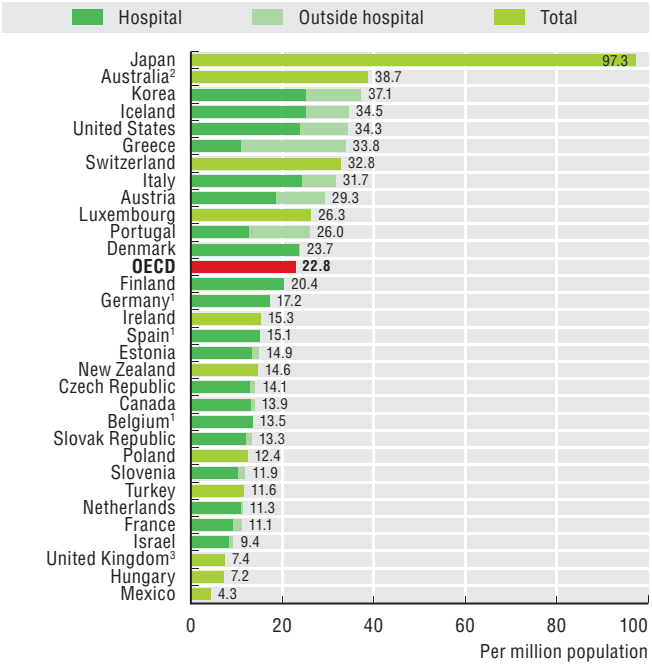
Note: The OECD average does not include countries which only report equipment in hospital (Belgium, Germany and Spain).

1. Equipment outside hospital not included.
2. Only equipment eligible for reimbursement under Medicare.
3. Any equipment in the private sector not included.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524469

4.2.2 CT scanners, 2009 (or nearest year)



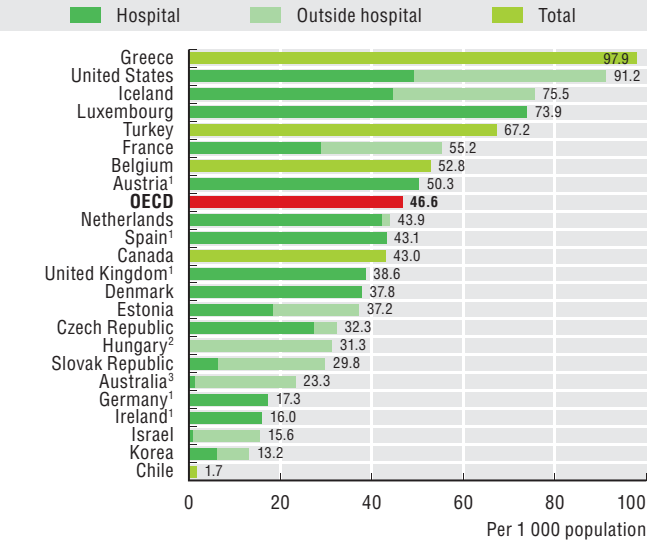
Note: The OECD average does not include countries which only report equipment in hospital (Belgium, Germany and Spain).

1. Equipment outside hospital not included.
2. Only equipment eligible for reimbursement under Medicare.
3. Any equipment in the private sector not included.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524488

4.2.3 MRI exams, 2009 (or nearest year)



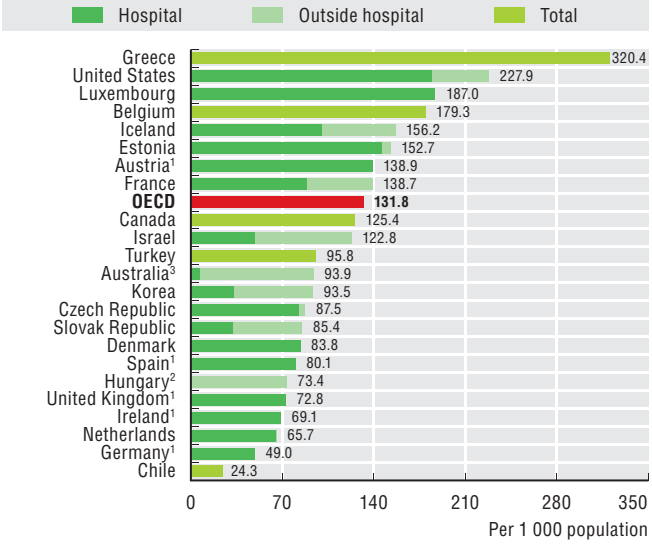
Note: The OECD average does not include countries which only report exams in or outside hospital.

1. Data for exams outside hospital are not available.
2. Data for exams in hospital are not available.
3. Only include exams for outpatients and private inpatients (excluding exams in public hospitals).

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524507

4.2.4 CT exams, 2009 (or nearest year)



Note: The OECD average does not include countries which only report exams in or outside hospital.

1. Data for exams outside hospital are not available.
2. Data for exams in hospital are not available.
3. Only include exams for outpatients and private inpatients (excluding exams in public hospitals).

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524526

4.3. Hospital beds

The number of hospital beds provides a measure 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 (acute), psychiatric, long-term and other types of care. It also includes an indicator of bed occupancy rates focussing on curative care beds.

Among OECD countries, the number of hospital beds per capita is highest in Japan and Korea, with over eight beds per 1 000 population in 2009 (Figure 4.3.1). Both Japan and Korea have "social admissions", that is, a significant part of hospital beds are devoted to long-term care. The number of hospital beds is also well above the OECD average in the Russian Federation, Germany and Austria. On the other hand, large emerging countries in Asia (India, Indonesia and China) have relatively few hospital beds compared with the OECD average. This is also the case for OECD and emerging countries in Central and South America (Mexico, Brazil and Chile).

The number of hospital beds per capita has decreased at least slightly over the past decade in most OECD countries, falling from 5.4 per 1 000 population in 2000 to 4.9 in 2009. This reduction has been driven partly by progress in medical technology which has enabled a move to day surgery and a reduced need for hospitalisation. The reduction in hospital beds has been accompanied in many countries by a reduction in hospital discharges and the average length of stay (see Indicators 4.4 "Hospital discharges" and 4.5 "Average length of stay in hospitals"). Only in Korea, Greece and Turkey has the number of hospital beds per capita grown between 2000 and 2009.

Two-thirds of hospital beds are allocated for curative care on average across OECD countries. The rest of the beds are allocated for psychiatric (14%), long-term (12%) and other types of care (8%). 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 number of hospital beds is in fact allocated for long-term care than for curative care, because local governments (municipalities) use some beds in health care centres (which are defined as hospitals) for at least some of the institution-based long-term care (OECD, 2005a). In Ireland, just over half of hospital beds are allocated for acute care, while 30% are devoted to long-term care (Figure 4.3.2).

In several countries, the reduction in the number of hospital beds has been accompanied by an increase in their occupancy rates. The occupancy rate of curative (acute) care beds stood at 76% on average across OECD countries in 2009, slightly above the 2000 level (Figure 4.3.3). Israel, Canada, Norway, Ireland, Switzerland, and the United Kingdom had the highest occupancy rates in 2009. All of these countries have fewer curative care beds than most other OECD countries. On the other hand, the Netherlands, Turkey and Mexico have the lowest occupancy rates, although the occupancy rate has increased over the past decade in Turkey and Mexico. In the Netherlands, the low occupancy rates can be explained at least partly by the fact that hospital beds include all administratively approved beds and not only those available for immediate use.

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: manage labour (obstetric), cure non-mental illness or provide definitive treatment of injury, perform surgery, relieve symptoms of non-mental illness or injury (excluding palliative care), reduce severity of non-mental illness or injury, protect against exacerbation and/or complication of non-mental illness and/or injury which could threaten life or normal functions, perform diagnostic or therapeutic procedures.

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.

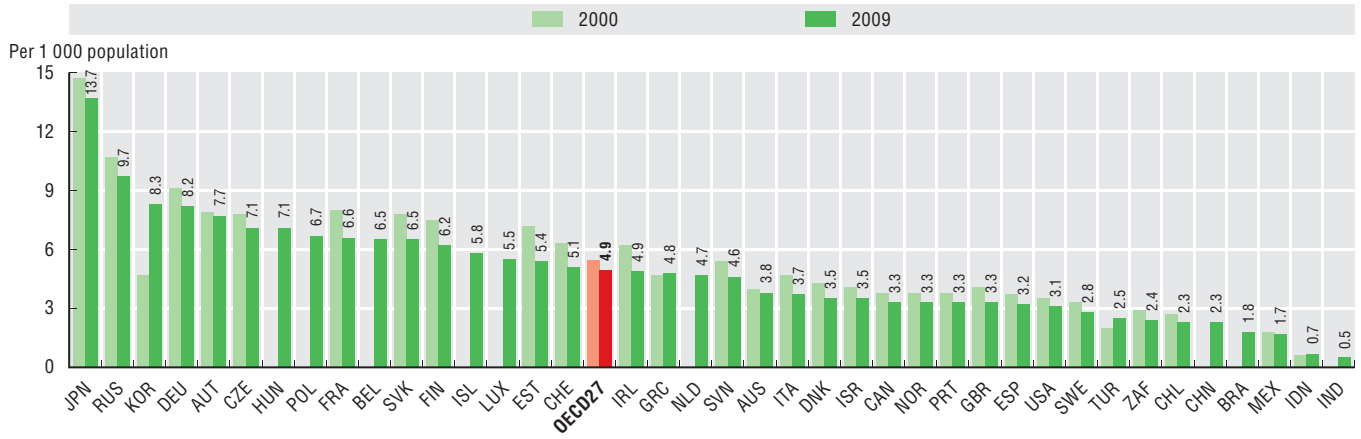
Long-term care beds are hospital beds accommodating patients requiring long-term care due to chronic impairments and a reduced degree of independence in activities of daily living. They include beds in long-term care departments of general hospitals, beds for long-term care in specialty hospitals, and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

The occupancy rate for curative (acute) care beds is calculated as the number of hospital bed-days related to curative care divided by the number of available curative care beds (multiplied by 365).

In the Netherlands, hospital beds include all beds that are administratively approved rather than only those immediately available for use, resulting in an overestimation (the difference between all administratively approved beds and beds available for immediate use was about 10% in 2007). This also results in an underestimation of bed occupancy rates.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

4.3.1 Hospital beds per 1 000 population, 2000 and 2009 (or nearest year)



Source: OECD *Health Data 2011*; national sources for non-OECD countries.

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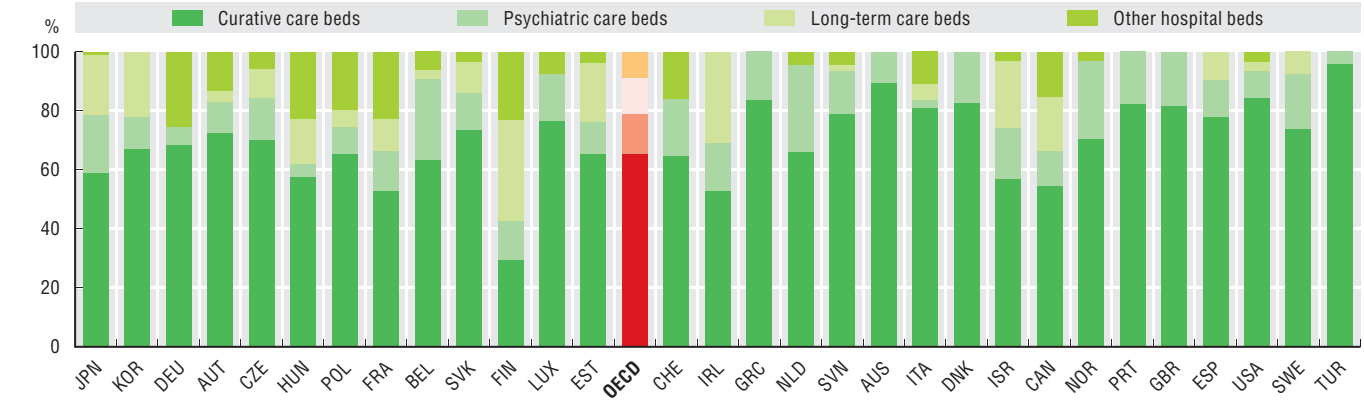
4.3.2 Hospital beds by function of health care, 2009 (or nearest year)

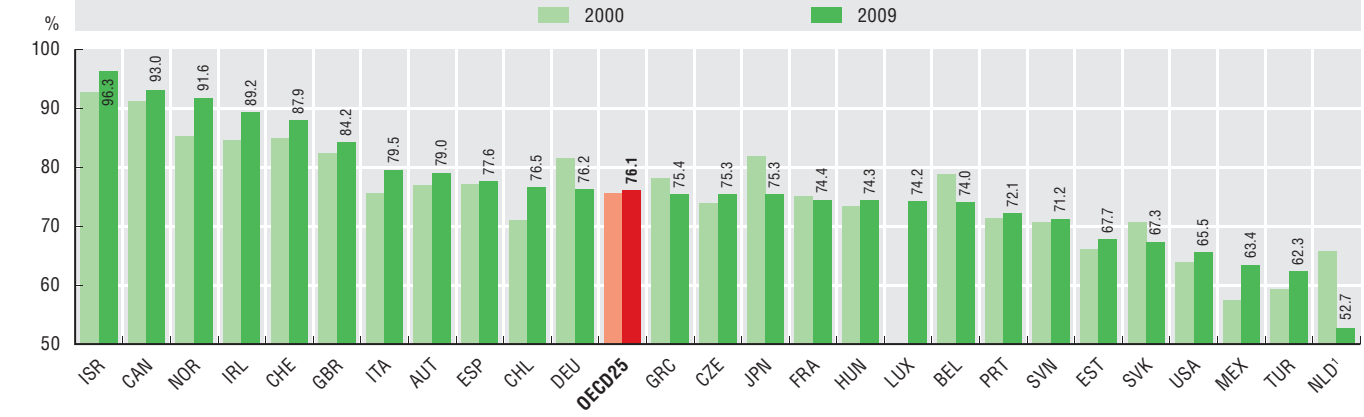
Countries ranked from highest to lowest number of total hospital beds per capita



Source: OECD *Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932524564

4.3.3 Occupancy rate of curative (acute) care beds, 2000 and 2009 (or nearest year)



1. In the Netherlands, hospital beds include all beds that are administratively approved rather than those immediately available for use.

Source: OECD *Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932524583

4.4. Hospital discharges

Hospital discharge rates measure the number of patients who leave a hospital after receiving care. 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 demand for hospital services, 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 2009, hospital discharge rates were the highest in Austria and France, although the high rate in France is partly explained by the inclusion of some separations for same-day procedures (Figure 4.4.1). Discharge rates are also high in the Russian Federation, Germany, the Slovak Republic, Poland and the Czech Republic. They are the lowest in Mexico, Brazil and China. In general, those countries that have more hospital beds tend to have higher discharge rates. For example, the number of hospital beds per capita in Austria and Germany is more than twice than Spain and the United Kingdom, and discharge rates are also about twice as large (see Indicator 4.3 "Hospital beds").

Across OECD countries, the main conditions leading to hospitalisation in 2009 were circulatory diseases (which include ischemic heart disease, stroke and other diseases), pregnancy and childbirth, diseases of the digestive system, cancers, and injuries and other external causes.

Germany and Austria have the highest discharge rate for circulatory diseases, followed by the Slovak Republic and Estonia (Figure 4.4.2). The high rates in the Slovak Republic and Estonia are associated with high mortality rate from circulatory diseases which may be used as a proxy indicator for the occurrence of these diseases (see Indicator 1.3 "Mortality from heart disease and stroke"). This is not the case for Germany and Austria.

Austria and Germany also have the highest discharge rates for cancers (Figure 4.4.3), although the number of new cancer cases in these countries is only around the OECD average (see Indicator 1.11 "Cancer incidence"). In Austria, the high rate is associated with a high rate of hospital readmissions for further investigation and treatment of cancer patients (European Commission, 2008a).

Trends in hospital discharge rates for all conditions vary widely. In about one-third of OECD countries, discharge rates have increased over the past ten years. These include countries where discharge rates were low in 2000 (*e.g.* Korea, Mexico and Turkey) and others where it was already above-average (*e.g.* Germany, Poland and the Slovak Republic). In a second group of countries (*e.g.* Austria, Belgium, France, Spain, Sweden and the United Kingdom), they have remained stable, while in the third group (including Canada, Denmark, Finland and Italy), discharge rates fell between 2000 and 2009.

Trends in hospital discharges reflect the interaction of several factors. Demand for hospitalisation may grow as populations age, given that older population groups account for a disproportionately high percentage of hospital discharges. For example, in Austria and Germany, 42% of all hospital discharges in 2008 were for people aged 65 and over, more than twice their share of the population. However, population ageing alone may be a less important factor in explaining trends in hospitalisation rates than changes in medical technologies and clinical practices. The diffusion of new medical interventions often gradually extends to older population groups, as interventions become safer and more effective for people at older ages (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, there has been a strong rise in the number of day surgeries (see Indicator 4.10, for example, for evidence on the rise in day surgeries for cataracts).

Definition and comparability

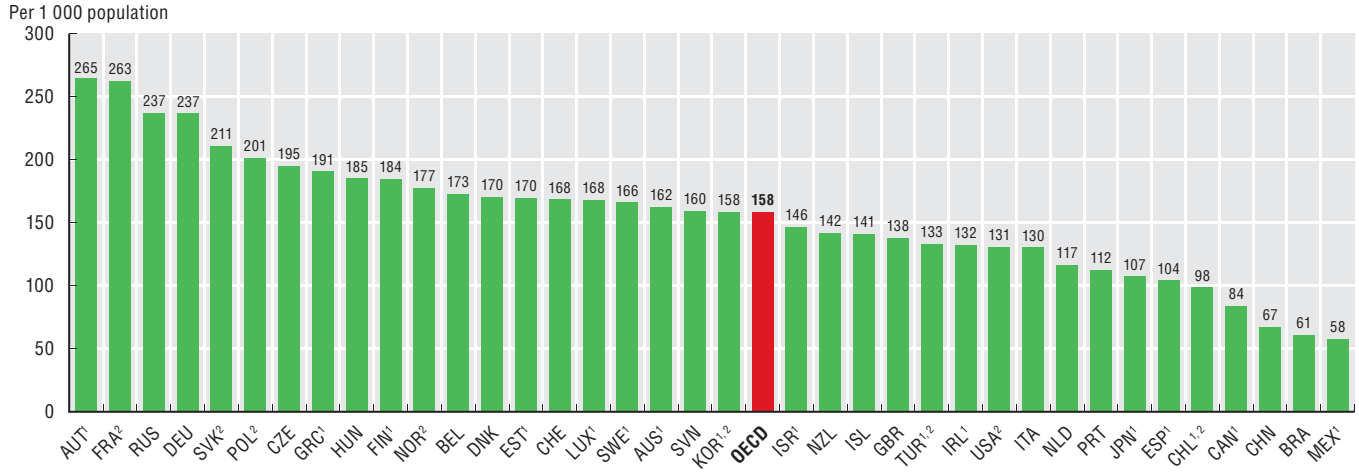
Hospital discharge is defined as the release of a patient who has stayed at least one night in hospital. It includes deaths in hospital following inpatient care. Same-day discharges are usually excluded, with the exceptions of Chile, France, Korea, Norway, Poland, the Slovak Republic, Turkey and the United States which include some same-day separations.

Healthy babies born in hospitals are excluded from hospital discharge rates in several countries (*e.g.* Australia, Austria, Canada, Chile, Estonia, Finland, Greece, Ireland, Israel, Japan, Korea, Luxembourg, Mexico, Spain, Sweden, Turkey). These comprise some 3-6% of all discharges.

Data for some countries do not cover all hospitals. For instance, data for Denmark, Ireland, Mexico, New Zealand, Poland, Sweden and the United Kingdom are restricted to public or publicly-funded hospitals only. Data for Portugal relate only to public hospitals on the mainland (excluding the Islands of Azores and Madeira). Data for Austria, Canada, Estonia, Luxembourg and the Netherlands include only acute care/short-stay hospitals. Data for Israel and Japan refer to acute care hospitalisations.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

4.4.1 Hospital discharges per 1 000 population, 2009 (or nearest year)

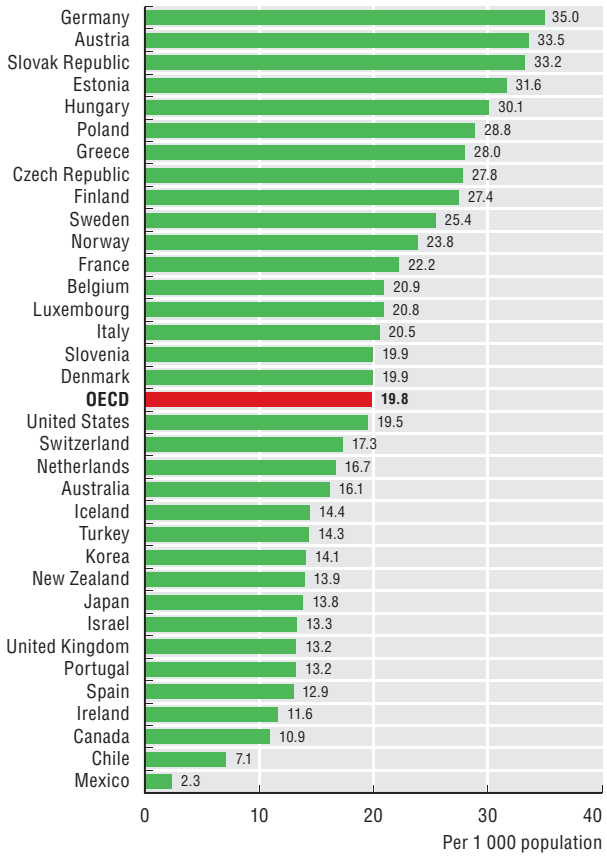


1. Excludes discharges of healthy babies born in hospital (between 3-6% of all discharges).
2. Includes same-day separations.

Source: OECD Health Data 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932524602

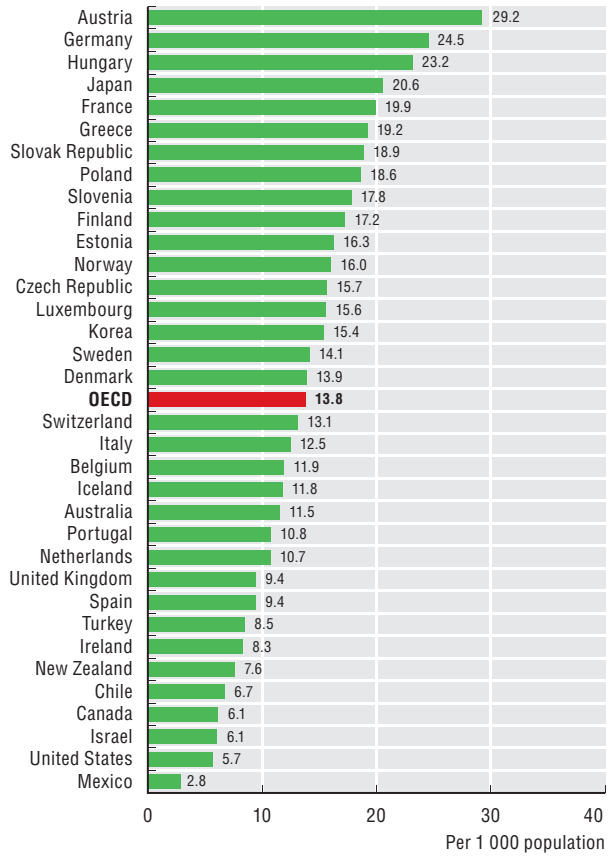
4.4.2 Hospital discharges for circulatory diseases per 1 000 population, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524621

4.4.3 Hospital discharges for cancers per 1 000 population, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524640

4.5. Average length of stay in hospitals

The average length of stay in hospitals (ALOS) is often used as an indicator of efficiency. All other things being equal, a shorter stay will 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 cause adverse effects on health outcomes, or reduce the comfort and recovery of the patient. If this leads to a greater readmission rate, costs per episode of illness may fall only slightly, or even rise.

In 2009, the average length of stay in hospitals for all causes among OECD countries was the lowest in Mexico, Turkey and Israel. It was also low in Norway and Denmark, as well as in the United States, all at less than five days. The average length of stay was highest in Japan, followed by Korea. The OECD average was about 7 days (Figure 4.5.1). Several factors can explain these cross-country differences. The abundant supply of beds and the structure of hospital payments in Japan provide hospitals with incentives to keep patients longer (see Indicator 4.3 "Hospital beds"). Financial incentives inherent in hospital payment methods can also influence length of stay in other countries.

The average length of stay in hospitals has fallen over the past decade in nearly all OECD countries – from 8.2 days in 2000 to 7.2 days in 2009 on average across OECD countries. It fell particularly quickly in some of the countries that had relatively high levels in 2000 (*e.g.* Japan, Switzerland and the United Kingdom). Several factors explain this decline, including the use of less invasive surgical procedures, changes in hospital payment methods, and the expansion of early discharge programmes which enable patients to return to their home to receive follow-up care.

Focusing on average length of stay for specific diseases or conditions can remove the effect of different mix and severity of conditions leading to hospitalisation across countries. Figure 4.5.3 shows that ALOS following a normal delivery ranges from less than two days in Mexico, Turkey, the United Kingdom, Iceland and Canada, to over 5 days in the Slovak Republic and Switzerland. ALOS for normal delivery has become shorter in nearly all countries over the past decade.

Lengths of stay following acute myocardial infarction (AMI, or heart attack) also declined over the past decade. In 2009, ALOS following AMI was the lowest in Turkey and some of the Nordic countries (Norway, Denmark and Sweden), at less than five days. It was the highest in Korea, Germany, Greece, Finland and Estonia, at around ten days or more (Figure 4.5.2). However, care is required in making cross-country comparisons. For example, ALOS in Finland may include patients originally admitted for AMI but who are no longer receiving acute care, and might therefore be considered long-term care patients.

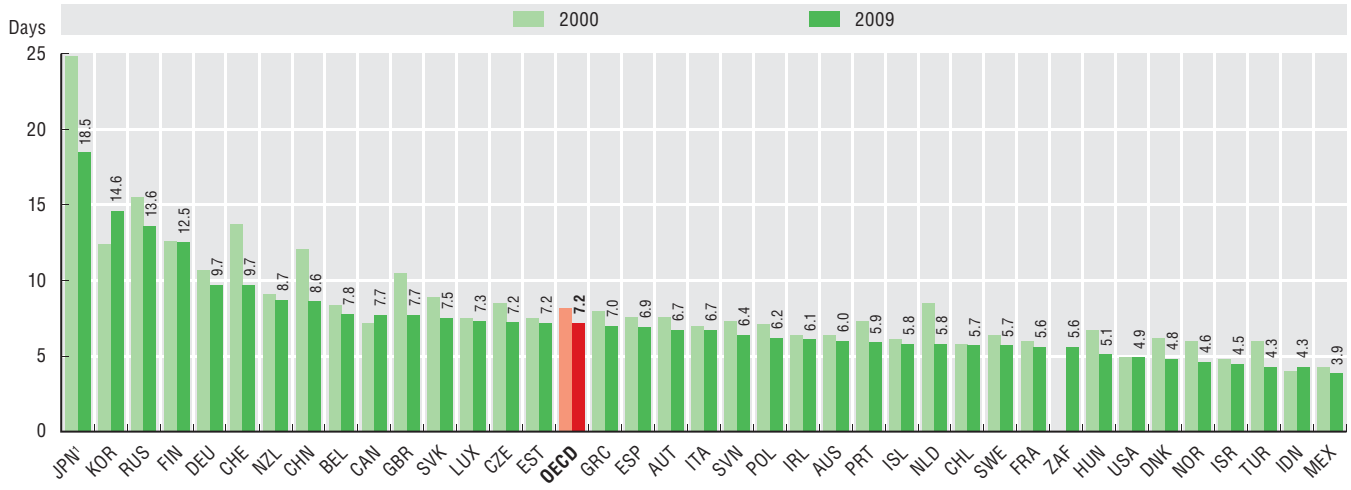
Definition and deviations

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.

In the calculation of ALOS, days and discharges of healthy babies born in hospitals are excluded in several countries (*e.g.* Australia, Austria, Canada, Chile, Estonia, Finland, Greece, Ireland, Israel, Japan, Korea, Luxembourg, Mexico, Spain, Sweden, Turkey). Including healthy newborns would reduce the ALOS in these countries (*e.g.* by 0.6 day in Canada).

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

4.5.1 Average length of stay in hospital for all causes, 2000 and 2009 (or nearest year)

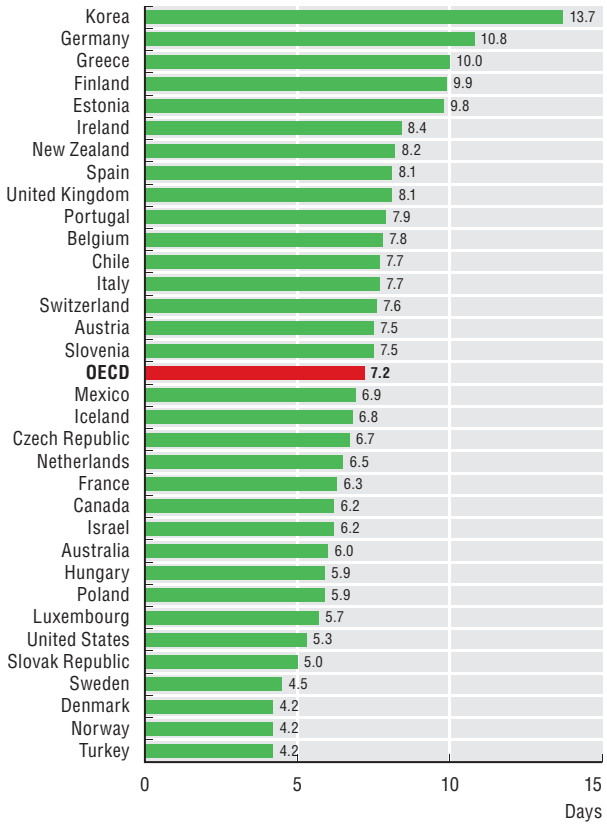


1. The data for Japan refer to average length of stay for acute care (excluding long-term care beds in hospitals).

Source: OECD Health Data 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

StatLink http://dx.doi.org/10.1787/888932524659

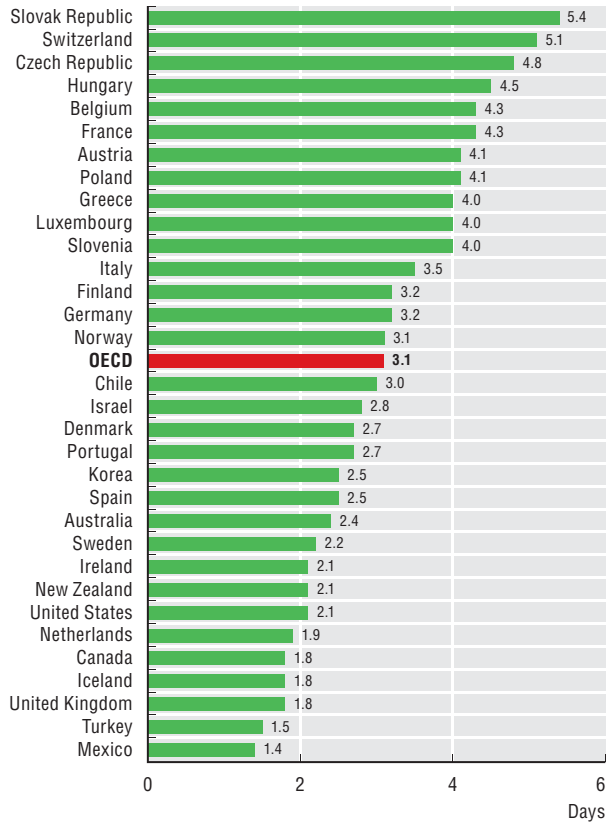
4.5.2 Average length of stay following acute myocardial infarction (AMI), 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524678

4.5.3 Average length of stay for normal delivery, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524697

4.6. Cardiac procedures (coronary angioplasty)

Heart diseases are a leading cause of hospitalisation and death in OECD countries (see Indicator 1.3). Coronary angioplasty is a revascularisation procedure that has revolutionised the treatment of ischemic heart diseases (heart attack and angina) over the past 20 years. It involves the threading of a catheter with a balloon attached to the tip through the arterial system into the diseased coronary artery. The balloon is inflated to distend the coronary artery at the point of obstruction. The placement of a stent to keep the artery open accompanies the majority of angioplasties. Drug-eluting stents (a stent that gradually releases drugs) are increasingly being used to stem the growth of scar-like tissue surrounding the stent.

There is considerable variation across OECD countries in the use of coronary angioplasty (Figure 4.6.1). Germany, Belgium and the United States had the highest rates of angioplasty in 2009, followed by Norway and Austria. The rate of use of angioplasty is the lowest in Mexico and Chile.

The use of angioplasty has increased rapidly since 1990 in most OECD 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 *et al.*, 2003). On average across OECD countries, angioplasty now accounts for 75% of all revascularisation procedures (Figure 4.6.2). Although angioplasty has in many cases replaced bypass surgery, it is not always a substitute since bypass surgery is still the preferred method for treating patients with multiple-vessel obstructions, diabetes and other conditions (Taggart, 2009).

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)* coding and reporting practices.

The large variations in the number of revascularisation procedures across countries do not seem to be closely related to the incidence of ischemic heart disease (IHD), as measured by IHD mortality (see Figure 1.3.1). IHD mortality in Germany and Belgium are not too far from the OECD average, but these two countries have the highest rate of revascularisation procedures. On the other hand, IHD mortality in Finland is above the OECD average, while revascularisation rates are below average.

In the United States, there has been a decline in the overall rate of revascularisation procedures between 2000 and 2009, driven by an almost 30% decrease in the number of coronary artery bypass graft (CABG) per capita, while the rate of angioplasty remained relatively stable. One of the reasons why the angioplasty rate did not increase is due to the greater use of drug-eluting stents which reduces the likelihood that the same patient will need another revascularisation. The combination of stable angioplasty rate, together with a reduction in repeat revascularisation, indicates that increasing numbers of patients have received an angioplasty over time (Epstein *et al.*, 2011).

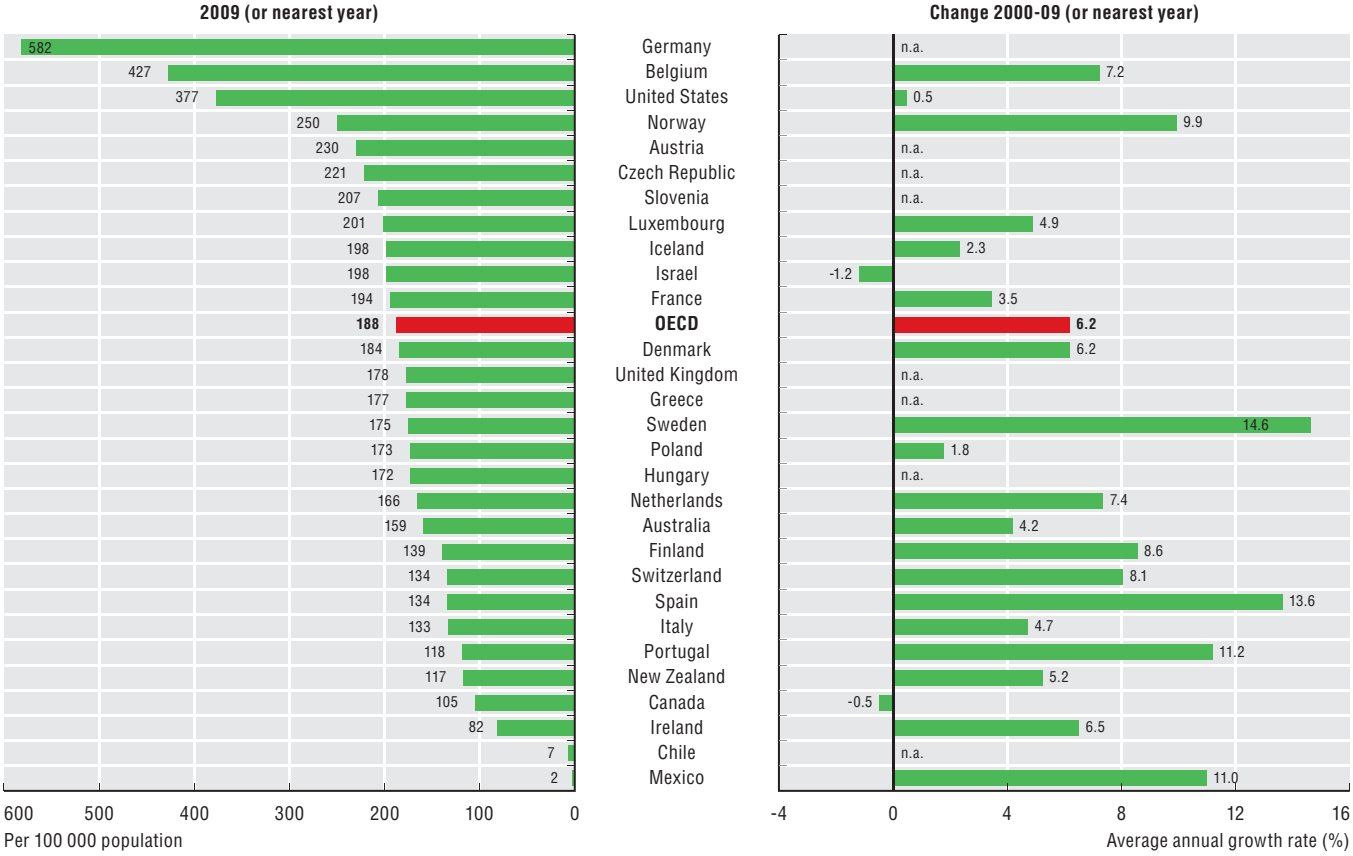
Coronary angioplasty is an expensive intervention, although it is much less costly than a coronary bypass because it is less intrusive. In 2007, the average estimated price of an angioplasty was about USD 14 400 in the United States, USD 9 300 in Canada and Sweden, and USD 7 000 in France (Koechlin *et al.*, 2010).

Definition and comparability

The data relate to inpatient procedures, excluding coronary angioplasties performed or recorded as day cases. Classification systems and registration practices vary across countries, and the same procedure can be recorded differently (*e.g.* an angioplasty with the placement of a stent can be counted as one or two procedures). Some countries report only the *main* procedure which may result in a significant under-estimation of the total number. This is the case for Italy, Luxembourg and Switzerland. In Ireland, the data only include activities in publicly-funded hospitals (it is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals). In countries such as the Netherlands, approximately 25% of all coronary angioplasties are registered as day cases, and these are not reported here.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

4.6.1 Coronary angioplasty per 100 000 population, 2009 and change between 2000 and 2009

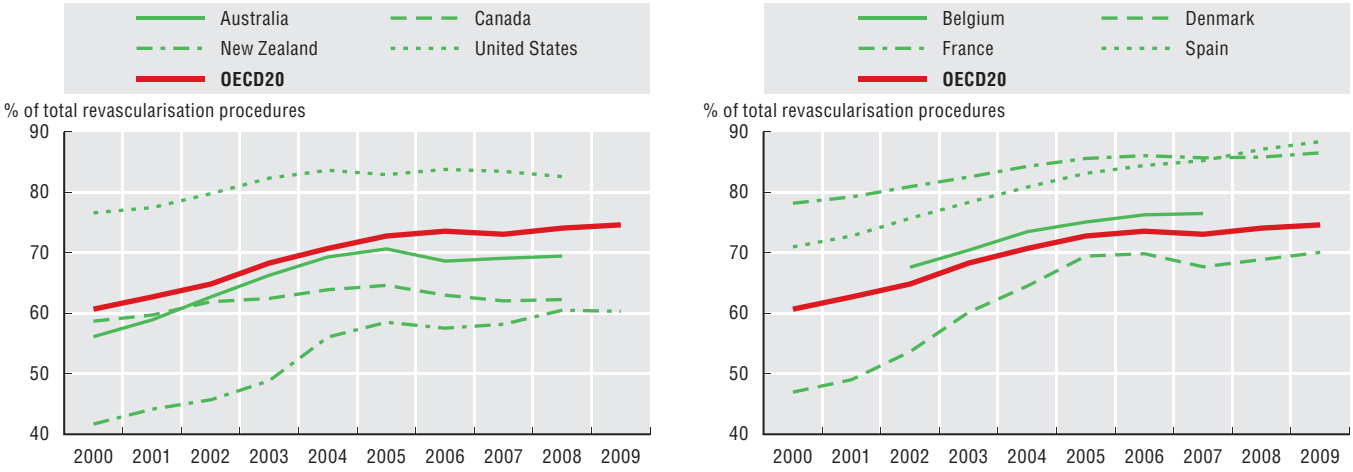


Note: Some of the variations across countries are due to different classification systems and recording practices.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932524716

4.6.2 Coronary angioplasty as a percentage of total revascularisation procedures, 2000-09



Note: Revascularisation procedures include coronary bypass and angioplasty.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932524735

4.7. Hip and knee replacement

Significant advances 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 (WHO, 2010b). Worldwide estimates are that 10% of men and 18% of women aged over 60 years have symptomatic osteoarthritis, including moderate and severe forms. 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 (European Commission, 2008b). While joint replacement surgery is mainly carried out among people aged 60 and over, it can also be performed among people of younger ages.

There is considerable variation across countries in the rate of hip and knee replacement (Figures 4.7.1 and 4.7.2). Germany, Switzerland and Austria have high rates of both hip and knee replacement. The United States and Germany have the highest rate of knee replacement, even though the population structure of the United States is much younger than that of Germany. A number of reasons can explain cross-country variations in the rate of hip and knee replacement, including: *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.

There are currently too few comparable studies on the prevalence of osteoarthritis to draw any conclusions on cross-country variations. Nor is there any evidence as to whether the age- and sex-specific incidence of osteoarthritis has changed in recent decades. However, the number of people suffering from osteoarthritis has increased, and is expected to continue to increase in the coming years, for two reasons: 1) population ageing, which is resulting in a growing number of people over 60 with a greater risk of suffering from osteoarthritis; and 2) the growing prevalence of obesity, which is the main risk factor for osteoarthritis beyond age and sex.

The number of hip and knee replacement has increased rapidly over the past decade in most OECD countries (Figures 4.7.3 and 4.7.4). On average, the rate of hip replacement increased by over 25% between 2000 and 2009. The growth rate was even higher for knee replacement, nearly doubling over the past decade. In the United States, both hip replacement and knee replacement rates nearly doubled since 2000. In Denmark, while the hip replacement rate increased by only about 20% between 2000 and 2009, the knee replacement rate almost tripled. The growth rate was more modest in other countries such as France and Israel.

The growing volume of hip and knee replacement is contributing to health expenditure growth as these are expensive interventions. In 2007, the average estimated price of a knee replacement was nearly USD 15 000 in the United States and Australia, USD 12 000 in France, and about USD 10 000 in Canada, Germany and Sweden. The estimated price of a hip replacement was even higher, reaching more than USD 17 000 in the United States, about USD 16 000 in Australia, and between USD 11 000 and 12 000 in Canada, France and Sweden (Koechlin *et al.*, 2010).

Definition and comparability

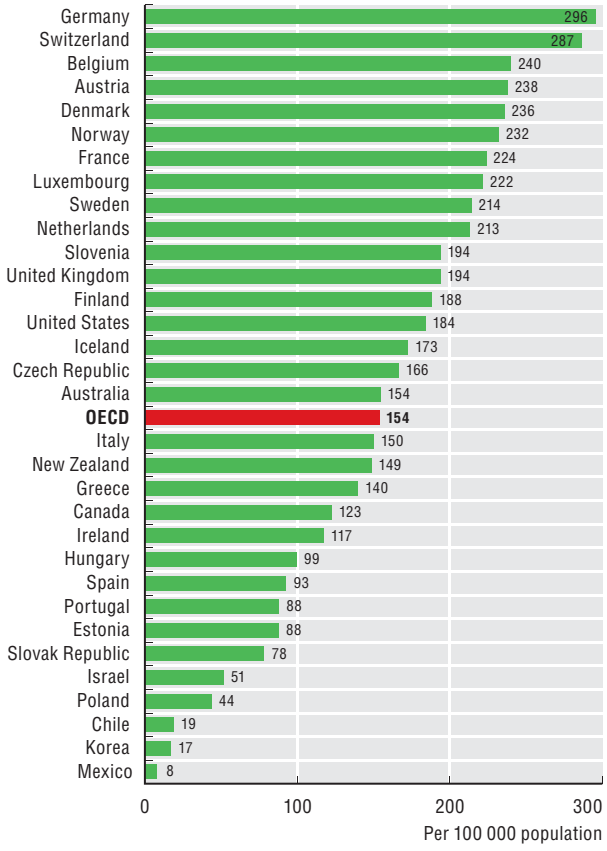
Hip replacement is a surgical procedure in which the hip joint is replaced by a prosthetic implant. It is generally conducted to relieve arthritis pain or treat severe physical joint damage following hip fracture.

Knee replacement is a surgical procedure to replace the weight-bearing surfaces of the knee joint in order to relieve the pain and disability of osteoarthritis. It may also 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. In Ireland, the data only include activities in publicly-funded hospitals (it is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals). Some countries only include total hip replacement, excluding partial hip replacement (*e.g.* Estonia).

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

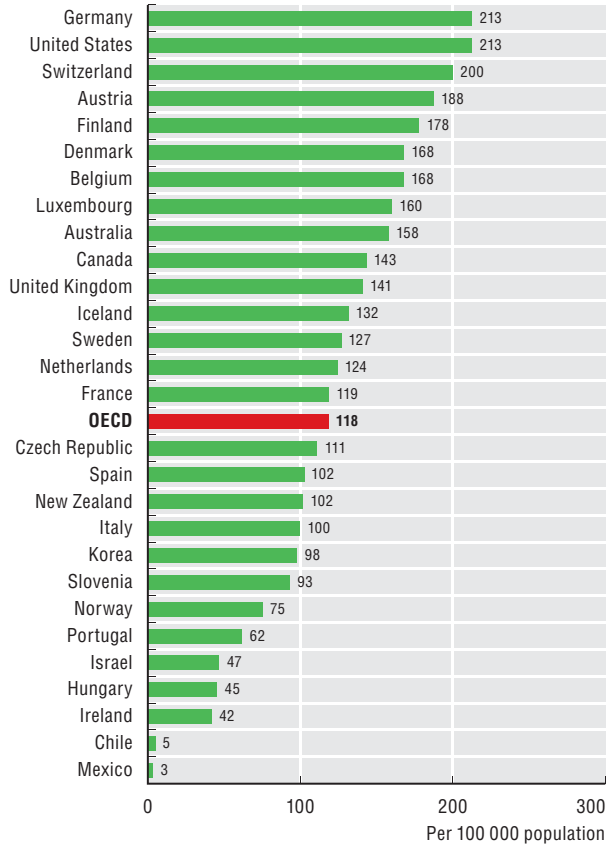
4.7.1 Hip replacement surgery, per 100 000 population, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524754

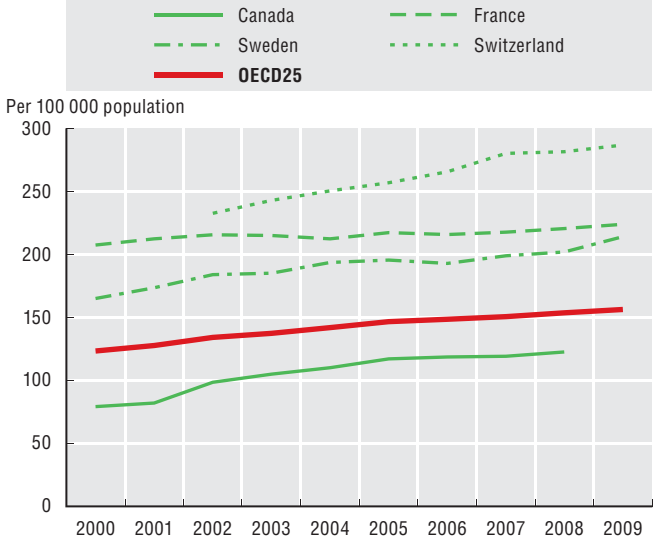
4.7.2 Knee replacement surgery, per 100 000 population, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524773

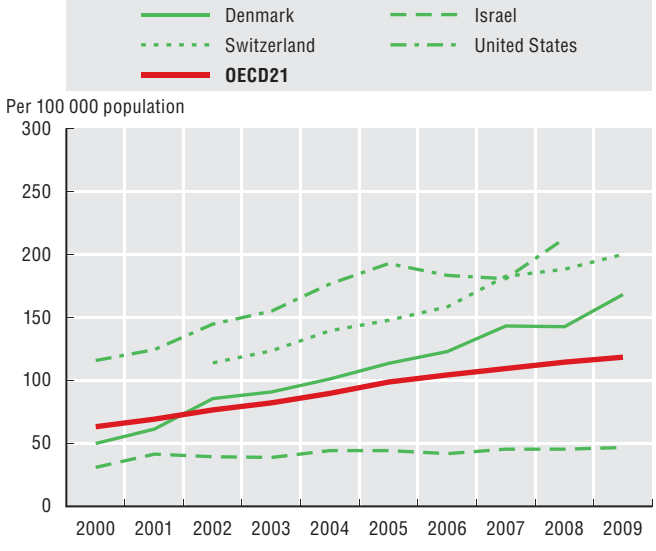
4.7.3 Trend in hip replacement surgery, 2000-09, selected countries



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524792

4.7.4 Trend in knee replacement surgery, 2000-09, selected countries



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524811

4.8. Treatment of renal failure (dialysis and kidney transplants)

End-stage renal failure (ESRF) is a condition in which the kidneys are permanently impaired and can no longer function normally. Some of the main risk factors for end-stage renal failure include diabetes and hypertension, two conditions which are becoming more prevalent in OECD countries. In the United States, diabetes and hypertension alone accounted for over 60% of the primary diagnoses for all ESRF patients (37% for diabetes and 24% for hypertension) (USRDS, 2008). When patients reach end-stage renal failure, they require treatment either in the form of dialysis or through kidney transplants. Treatment through dialysis tends to be more costly and results in a poorer quality of life for patients than a successful kidney transplant, because of its recurrent nature.

Taking into account both types of treatment, the proportion of people treated for end-stage renal failure has increased at a rate of over 5% per year on average across OECD countries over the past two decades. This means that the prevalence of treatment for ESRF has more than doubled since 1990. Japan and the United States have the highest rates, with 190 and 180 ESRF patients per 100 000 population respectively (Figure 4.8.1). They are followed by Portugal which has registered one of the highest growth rates since 1990. It is not clear why these countries report such high rates of treatment, but it does not seem to be solely related to a higher prevalence of diabetes, which is not particularly higher in these countries compared with other OECD countries (see Indicator 1.10 "Diabetes prevalence and incidence").

In most OECD countries, a majority of ESRF patients are being treated through dialysis as opposed to receiving a kidney transplant. This is because while the prevalence of people suffering from end-stage renal failure has strongly increased, the number of transplants is limited by the number of donors. The exceptions are Finland, Iceland, the Netherlands and Ireland, where most ESRF patients have received a kidney transplant.

The proportion of people undergoing dialysis is much higher in Japan and the United States (Figure 4.8.2). In Japan, nearly all ESRF patients are treated through dialysis, with very low rates of kidney transplants. In all countries, there has been a large rise in the number of persons undergoing dialysis over the past 20 years, with the OECD average more than doubling.

Given the supply constraints, kidney transplants are normally performed on patients with end-stage renal failure when these persons cannot live without difficult dialysis sessions. When successful, these transplants greatly improve quality of life, without strict diet and activity limitation. Advances in surgical techniques and the development of new drugs preventing rejection have made it possible to carry out more transplants, and to improve their rate of success, than was the case 20 years ago. The prevalence of people living with a functioning kidney transplant has steadily increased since 1990 in all countries with available data. The OECD average more than doubled, rising from 15 to 36 people per 100 000 population between 1990 and 2009 (Figure 4.8.3). In 2009, Portugal, the United States, the Netherlands and Austria reported the highest rates of people with a functioning kidney transplant. On the other hand, the proportion of people having received a kidney transplant was the lowest in Japan, followed by the Slovak Republic, Greece and Korea.

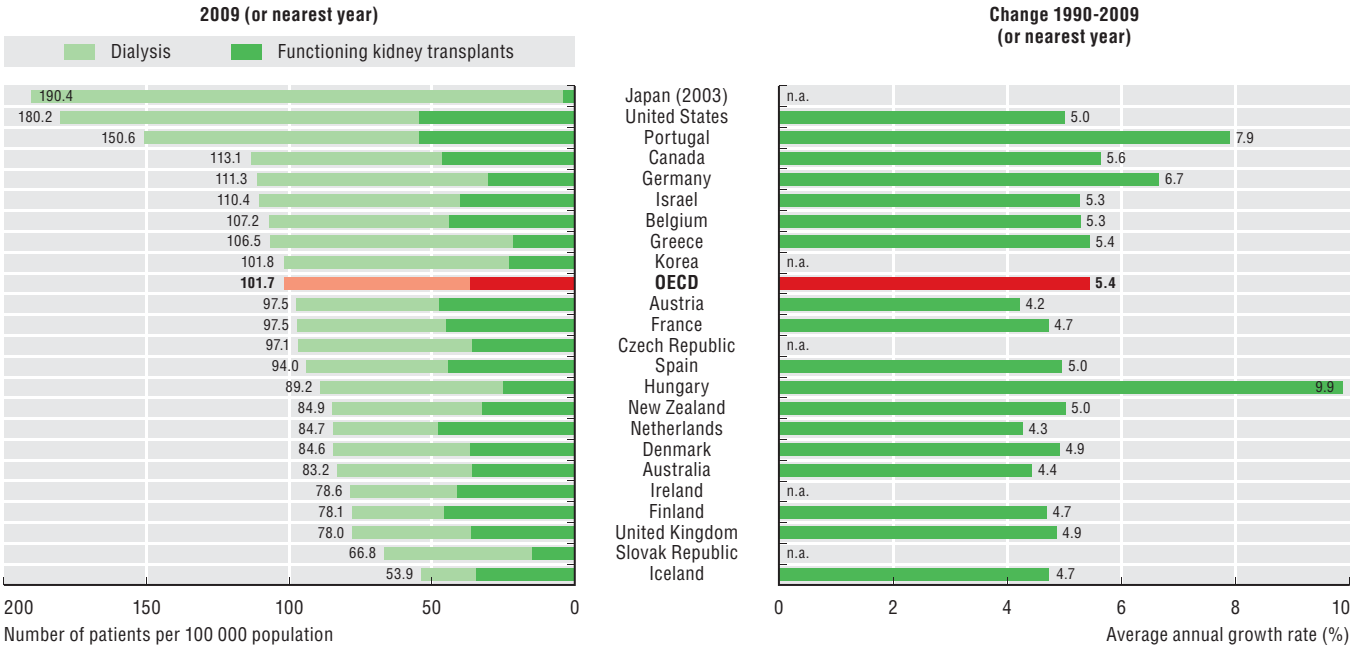
In many countries, waiting lists to receive a kidney transplant have increased, as the demand for transplants has greatly outpaced the number of donors. The rate of transplants is also affected by cultural factors and traditions; transplants may still be less accepted in certain countries such as Japan.

Definition and comparability

The number of patients treated for end-stage renal failure (ESRF) refers to the number of patients who are receiving different forms of renal replacement therapy: haemodialysis/haemoinfiltration, intermittent peritoneal dialysis, continuous ambulatory peritoneal dialysis, continuous cyclical peritoneal dialysis, or living with a functioning kidney transplant.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

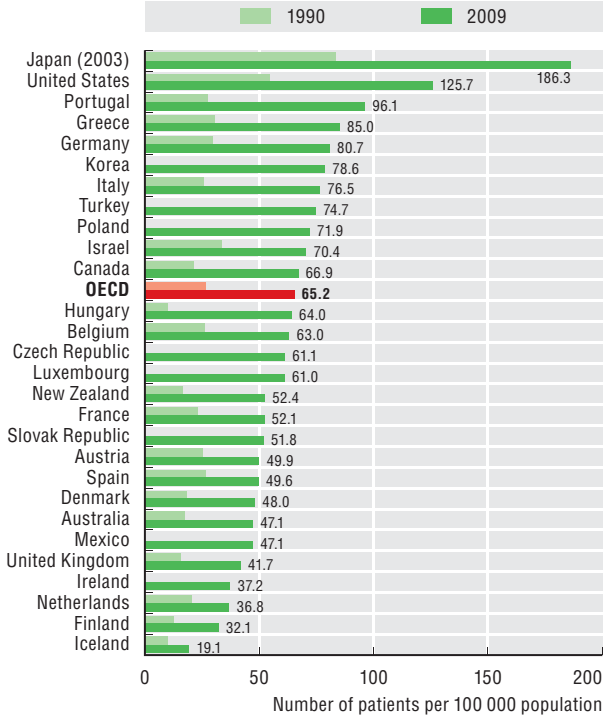
4.8.1 Prevalence of patients treated for end-stage renal failure, 2009 and change between 1990 and 2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524830

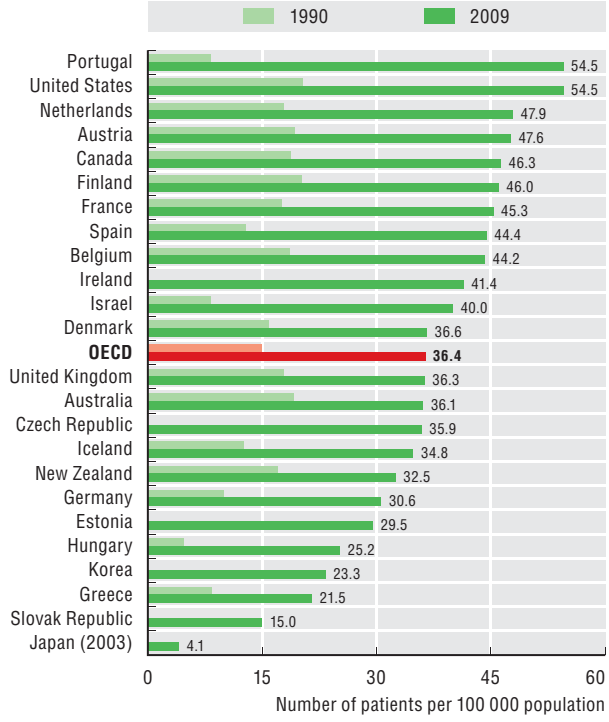
4.8.2 Prevalence of patients undergoing dialysis, 1990 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524849

4.8.3 Prevalence of patients living with a functioning kidney transplant, 1990 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524868

4.9. Caesarean sections

Rates of caesarean delivery as a percentage of all live births have increased in all OECD countries in recent decades, although in a few countries this trend has reversed over the past few years. Reasons for the increase include reductions in the risk of caesarean delivery, malpractice liability concerns, scheduling convenience for both physicians and patients, and changes in the physician-patient relationship, among others. Nonetheless, caesarean delivery continues to result in increased maternal mortality, maternal and infant morbidity, and increased complications for subsequent deliveries (Minkoff and Chervenak, 2003; Bewley and Cockburn, 2002; Villar *et al.*, 2006). These concerns, combined with the greater financial cost (the average cost associated with a caesarean section is at least two times greater than a normal delivery in many OECD countries; Koechlin *et al.*, 2010), raise questions about the appropriateness of some caesarean delivery that may not be medically required.

In 2009, caesarean section rates were the lowest in the Netherlands (14% of all live births), and were relatively low also in many Nordic countries (Finland, Iceland, Norway and Sweden). In the Netherlands, home births are a common option for women with low-risk pregnancies, and 30% of all births occurred at home in 2004 (Euro-Peristat, 2008). Among OECD countries, caesarean section rates were highest in Turkey and Mexico (at over 40%), but the rates were even higher in some major non-member countries such as Brazil and China. The average rate across OECD countries was 26% (Figure 4.9.1).

Caesarean rates have increased rapidly over the past two decades in most OECD countries (Figure 4.9.2). The increase temporarily slowed during the 1990s in some OECD countries such as Canada and the United States, as a result of changes in obstetrical practice including trial of normal labor and delivery after a woman has had a previous caesarean to reduce the number of repeat caesareans (Lagrew and Adashek, 1998). But caesarean rates soon resumed their upward trend, due in part to reports of complications from trial of labour and continued changes in patient preferences (Sachs *et al.*, 1999). Other trends, such as increases in first births among older women and the rise in multiple births resulting from assisted reproduction, also contributed to the global rise in caesarean deliveries.

On average across OECD countries, caesarean rates increased from 14% of all births in 1990 to nearly 20% in 2000 and 26% in 2009. The growth rate since 2000 has been particularly rapid in Denmark, the Czech Republic, Poland and the Slovak Republic. Finland and Iceland are the only two OECD countries that have slightly reversed the trend of rising caesarean rates since 2000.

The continued rise in caesarean deliveries is only partly related to changes in medical indications. A study of caesarean delivery trends in the United States found that the proportion of "no indicated risk" caesareans rose from 3.7% of all births in 1996 to 5.5% in 2001 (Declercq *et al.*, 2005). In France, a 2008 study by the French Hospital Federation found higher caesarean rates in private for-profit facilities than in public facilities, even though the latter are designed to deal with more complicated pregnancies (FHF, 2008). A review of caesarean delivery practice in Latin American countries in the late 1990s found similarly higher caesarean rates in private hospitals (Belizan *et al.*, 1999).

While caesarean delivery is required in some circumstances, the benefits of caesarean *versus* vaginal delivery for normal uncomplicated deliveries continue to be debated. Professional associations of obstetricians and gynaecologists in countries such as Canada now encourage the promotion of normal childbirth without interventions such as caesarean sections (Society of Obstetricians and Gynaecologists of Canada *et al.*, 2008).

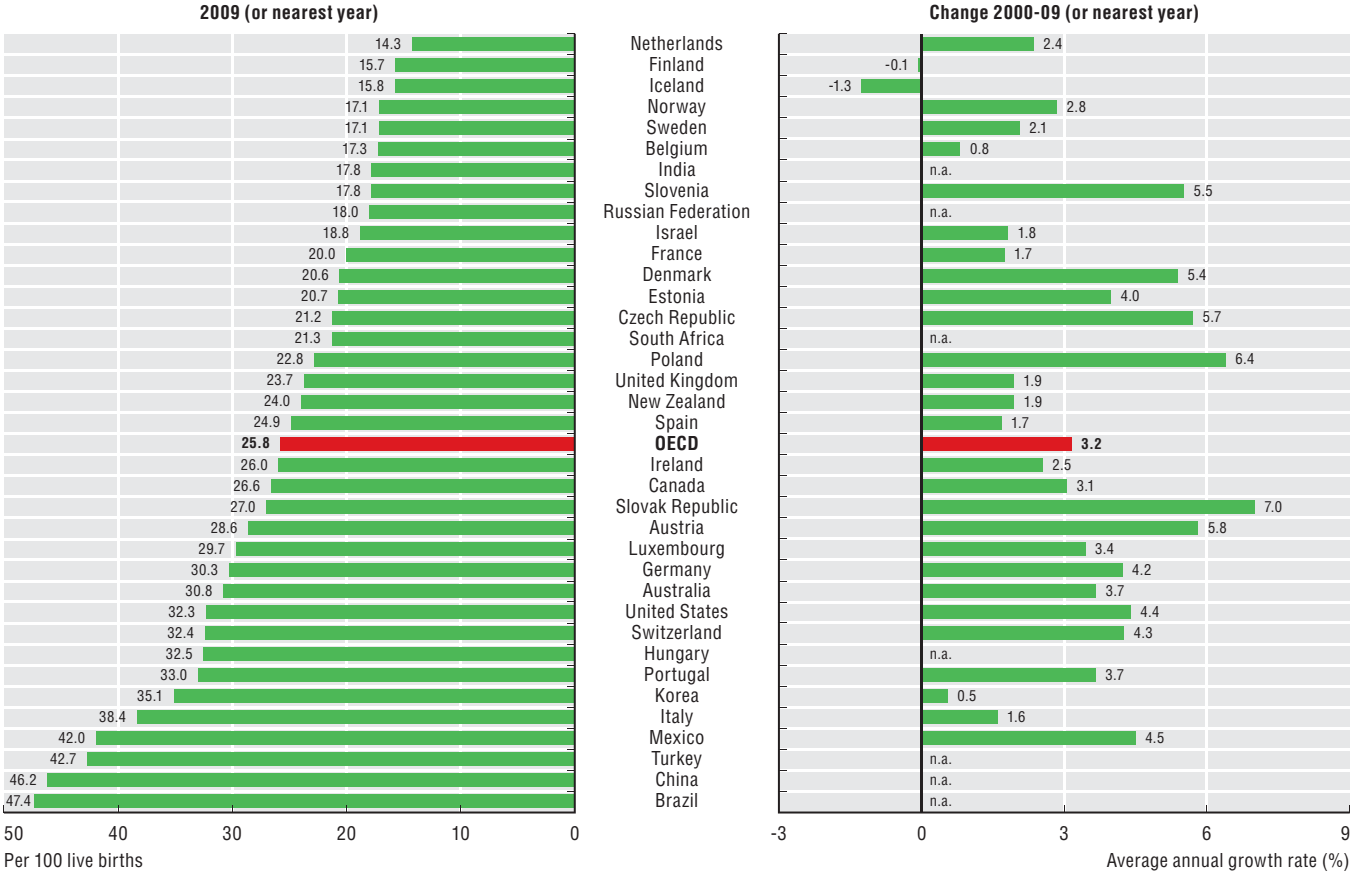
Definition and comparability

The caesarean section rate is the number of caesarean deliveries performed per 100 live births.

In Portugal, the denominator is limited to the number of live births which took place in National Health Service Hospitals on the mainland, resulting in an over-estimation of caesarean rates. In Mexico, the number of caesarean sections is estimated based on public hospital reports and data obtained from National Health Surveys. Estimation is required to correct for under-reporting of caesarean deliveries in private facilities. The combined number of caesarean deliveries is then divided by the total number of live births as estimated by the National Population Council.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

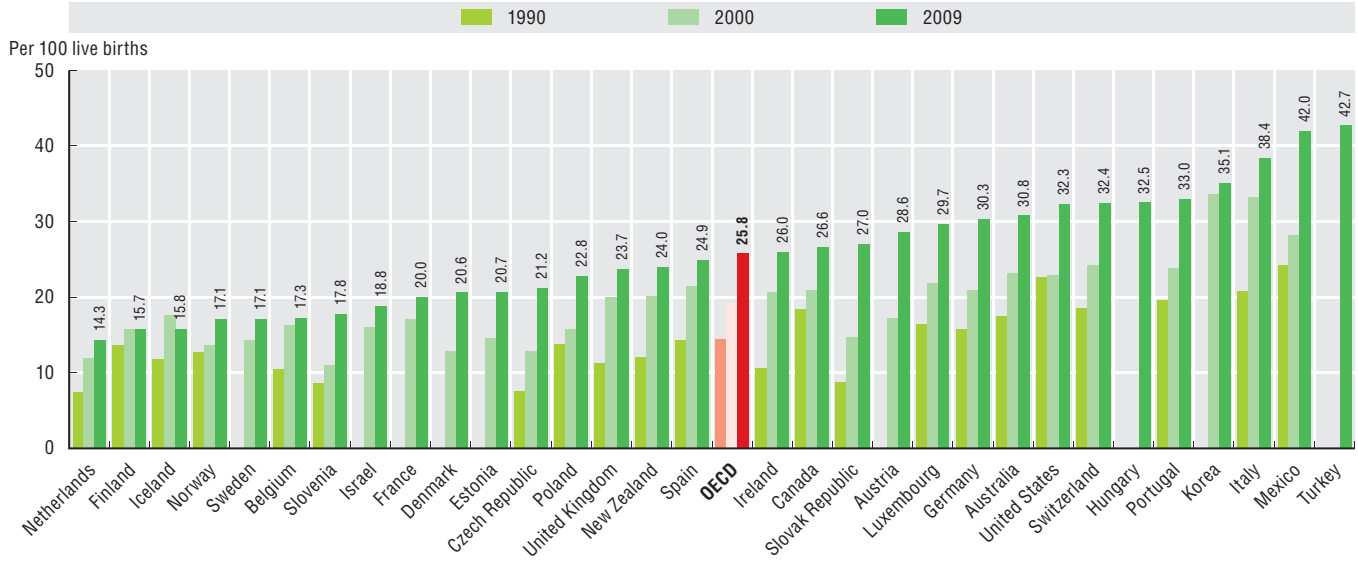
4.9.1 Caesarean sections per 100 live births, 2009 and change between 2000 and 2009



Source: *OECD Health Data 2011*; WHO (2008a).

StatLink http://dx.doi.org/10.1787/888932524887

4.9.2 Caesarean sections per 100 live births, 1990-2009 (or nearest year)



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932524906

4.10. Cataract surgeries

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 most OECD 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 helped to reduce 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 sheer number of procedures performed, and needs to take into account any additional cost related to post-acute care and community health services.

Cataract surgery provides a good example of a high-volume surgery which is now carried out predominantly on a same-day basis in most OECD countries. Day surgery now accounts for over 90% of all cataract surgeries in a majority of countries (Figure 4.10.1). However, the use of day surgery is still relatively low in some countries, such as Poland, the Slovak Republic and Hungary. This may be explained by more advantageous reimbursement for inpatient stays, national regulations, and obstacles to changing individual practices of surgeons and anaesthetists (Castoro *et al.*, 2007), but these low rates may also reflect limitations in data coverage (the lack of registration of day surgeries carried outside hospitals in Poland).

The number of cataract surgeries performed on a same-day basis has grown very rapidly over the past decade in many countries. In France, the share rose from 32% in 2000 to 78% in 2009. In Portugal, it has grown at a rate of over 50% per year since 2000 (Figure 4.10.2). Whereas less than 10% of cataract surgeries in Portugal were performed on a same-day basis in 2000, this proportion increased to 92% in 2009. In Luxembourg also, the number of cataract surgeries carried out as day cases has risen rapidly over the past decade, although they still account for only one-quarter of all cataract surgeries. In Norway, the growth in cataract surgeries performed as day cases since 2000 substituted for some that previously required hospitalisation; the overall number of procedures remained constant, but the share of day case surgeries increased from 87% to 97%.

The total number of cataract surgeries has also grown substantially over the past decade, so that it has now become the most frequent surgical procedure in many OECD countries. Population ageing is one of the factors behind this rise, but the proven success, safety and cost-effectiveness of cataract surgery 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 question 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).

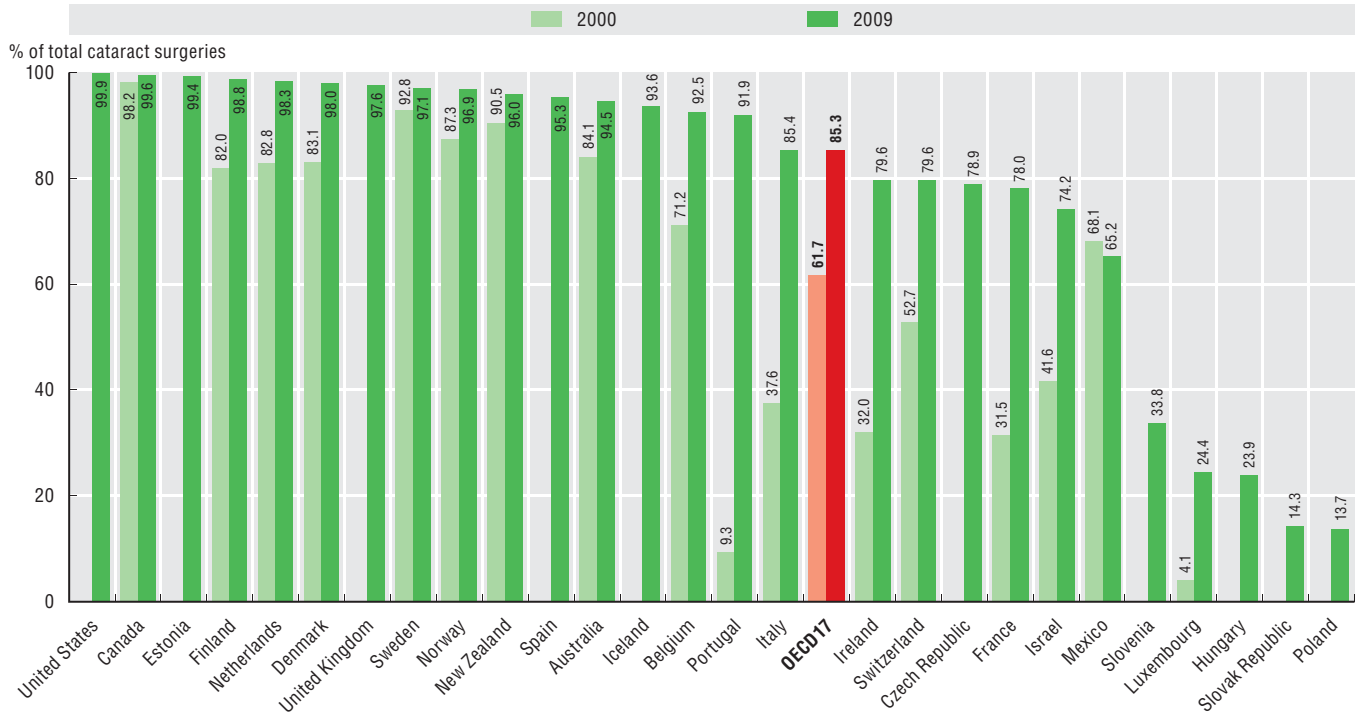
Definition and comparability

Cataract surgeries consist of removing the lens of the eye because of the presence of cataracts and replacing it with an artificial lens. The surgery may be carried out as a day case or as an inpatient case (involving an overnight stay in hospital). Although same-day interventions may either be performed in a hospital or in a clinic, the data for many countries (*e.g.* Ireland, Hungary, the Netherlands, Poland) only include interventions carried out in hospitals. Caution is therefore required in making cross-country comparisons, given the different coverage of day surgeries in several countries.

The data for Denmark only include cataract surgeries carried out in public hospitals, excluding procedures carried out in the ambulatory sector and in private hospitals. In Ireland too, the data cover only procedures in public hospitals. It is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals. The data for Spain only partially include the activities in private hospitals.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

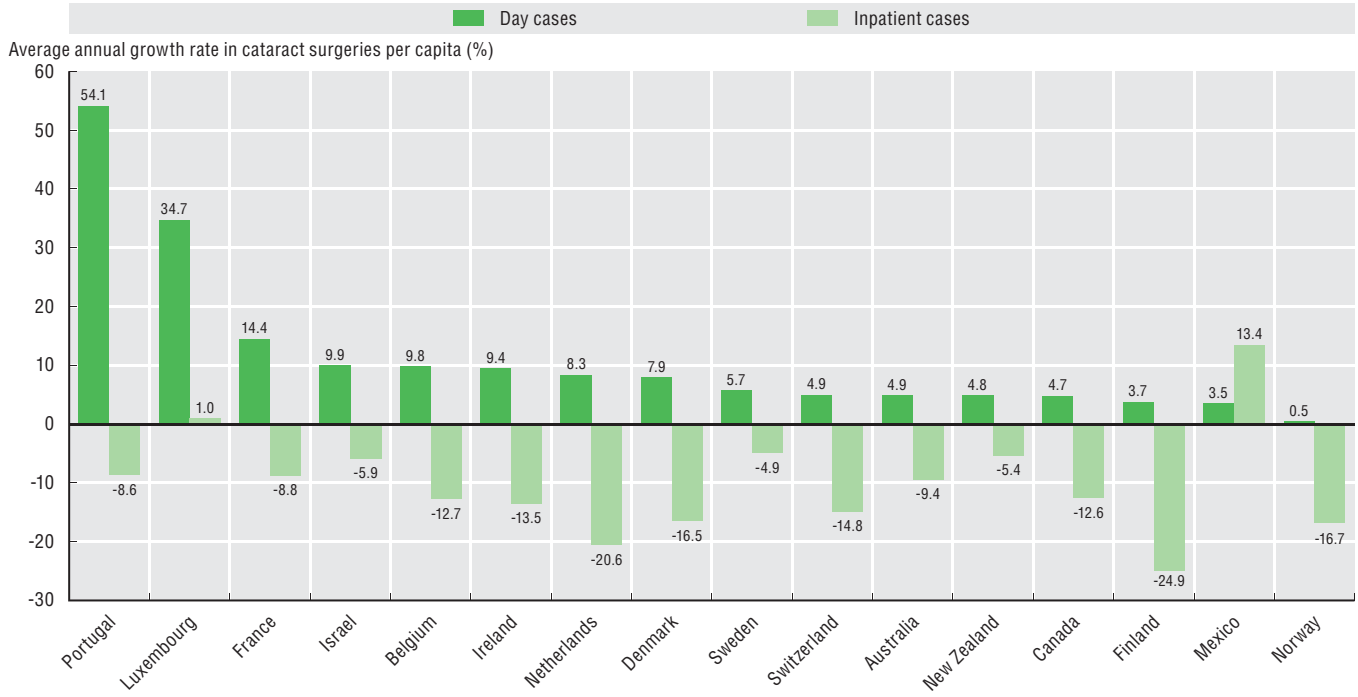
4.10.1 Share of cataract surgeries carried out as day cases, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524925

4.10.2 Trends in cataract surgeries, inpatient and day cases, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524944

4.11. Pharmaceutical consumption

The consumption of pharmaceuticals is increasing across OECD countries, not only in terms of expenditure (see Indicator 7.4 "Pharmaceutical expenditure"), but also the volume or quantity of drugs consumed. One of the factors contributing to this rise is a growing demand for drugs to treat ageing-related diseases. However, the rise in pharmaceutical consumption is also observed in countries with younger populations, indicating that other factors, such as physicians' prescription habits, also play a role.

This section discusses the volume of consumption of four categories of pharmaceuticals: antidiabetics, antidepressants, anticholesterols and antibiotics. Consumption of these drugs 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").

There is much variation in the use of drugs for the treatment of diabetes, with consumption in Iceland and Estonia almost half that in Finland or Germany (Figure 4.11.1). This is partly explained by the prevalence of diabetes, which is low in Iceland and higher in Germany (see Indicator 1.10 "Diabetes prevalence and incidence"). However, some of the highest consumers are not countries with high diabetes prevalence. Between 2000 and 2009, the consumption of antidiabetics increased by 75% on average across all countries. The growth rate was particularly strong in the Slovak Republic (although from a low level), Portugal, Germany and Finland. Reasons apart from a rising prevalence of diabetes are increases in the proportion of people treated, and the average dosages used in treatments (Melander *et al.*, 2006).

Iceland reports the highest level of consumption of antidepressants, followed by Australia, Denmark and Sweden (Figure 4.11.2). Variations in consumption across countries may be due to differences in the prevalence of depression. For example, according to the WHO World Mental Health Surveys, self-reported prevalence of depression in France was about twice that in Germany in the mid-2000s (Kessler and Üstün, 2008) which may partly explain the higher consumption in France. However, country differences in drug prescription guidelines and behaviors also contribute. In France, the increase in antidepressant consumption has been associated with a longer duration in pharmaceutical treatments, although the inappropriate use of antidepressants has also been identified as a contributing factor (Grandfils and Sermet, 2009). The consumption of antidepressants has grown substantially in all countries over the past decade, by over 60% on average.

Anticholesterol consumption ranges from a high of 126 DDDs per 1 000 people per day in Australia to a low of 21 in Estonia (Figure 4.11.3). While this might partly reflect differences in the prevalence of cholesterol levels in the population, again, differences in clinical guidelines for the control of bad cholesterol also play a role. Guidelines in Australia target lower bad cholesterol levels than those in European countries; and differences also exist in target levels within Europe (National Heart Foundation of Australia *et al.*, 2005; Hockley and Gemmill, 2007). Both the epidemiological context – for instance, growing obesity – and increased screening and treatment explain the very rapid growth in the consumption of anticholesterols across OECD countries.

The consumption of antibiotics varies from 11 DDDs per 1 000 people per day in the Netherlands to 39 in Greece (Figure 4.11.4). Since over-consumption of antibiotics has been linked to bacterial resistance, many countries have launched information campaigns targeting physicians and patients in order to reduce consumption. Consumption has stabilised in many countries and decreased in others such as Estonia, Slovenia, Hungary, Portugal, the Slovak Republic and France. In contrast, consumption has risen in countries that had below-average levels in 2000, such as the Netherlands, Austria and Denmark, as well as in Greece.

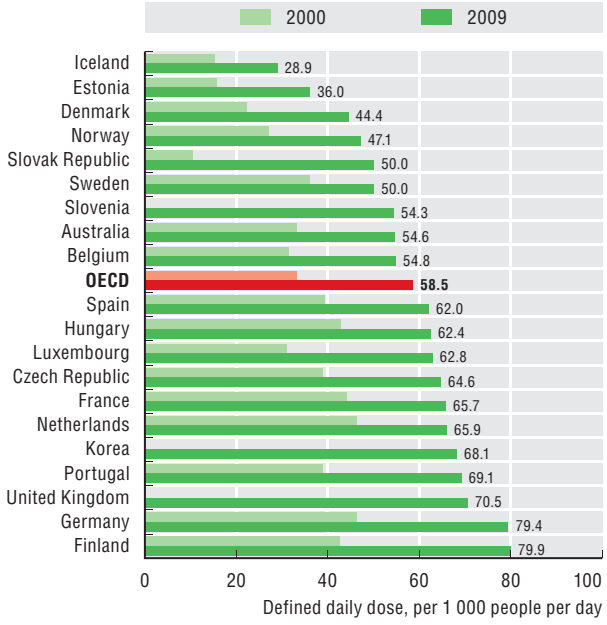
Definition and comparability

Defined daily dose (DDD) is the assumed average maintenance dose per day for a drug 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

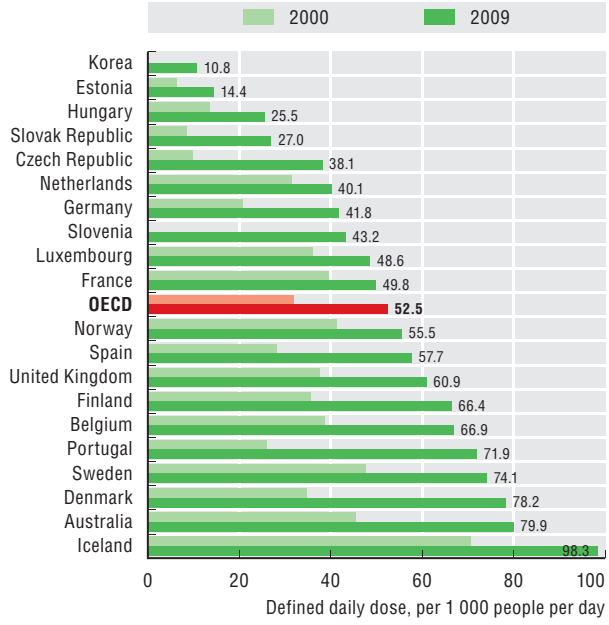
4.11.1 Antidiabetics consumption, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524963

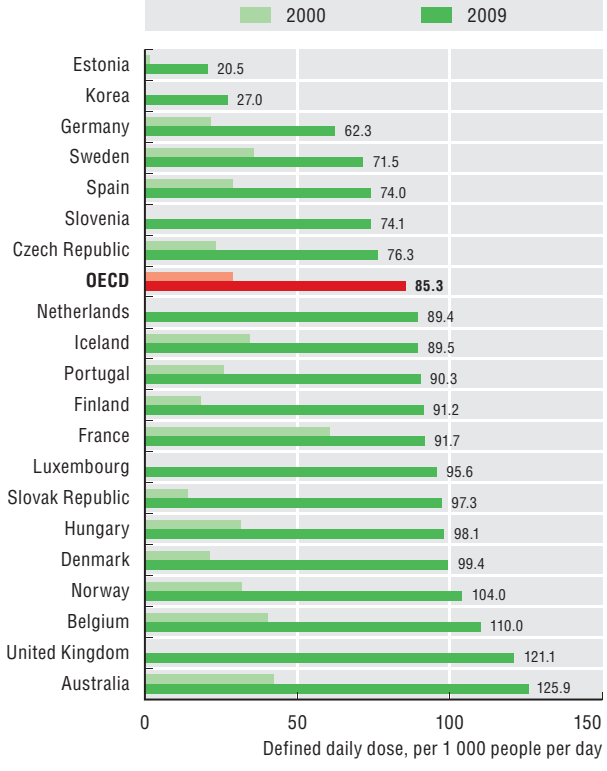
4.11.2 Antidepressants consumption, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932524982

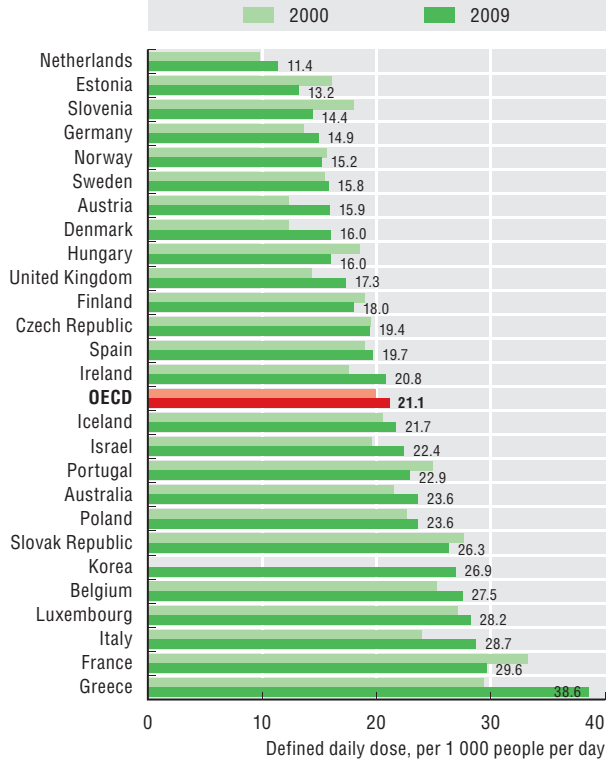
4.11.3 Anticholesterols consumption, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525001

4.11.4 Antibiotics consumption, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525020

5. QUALITY OF CARE

Care for chronic conditions

5.1. Avoidable admissions: Respiratory diseases

5.2. Avoidable admissions: Uncontrolled diabetes

Care for acute exacerbation of chronic conditions

5.3. In-hospital mortality following acute myocardial infarction

5.4. In-hospital mortality following stroke

Patient safety

5.5. Obstetric trauma

5.6. Procedural or postoperative complications

Care for mental disorders

5.7. Unplanned hospital re-admissions for mental disorders

Cancer care

5.8. Screening, survival and mortality for cervical cancer

5.9. Screening, survival and mortality for breast cancer

5.10. Survival and mortality for colorectal cancer

Care for communicable diseases

5.11. Childhood vaccination programmes

5.12. Influenza vaccination for older people

5.1. Avoidable admissions: Respiratory diseases

Chronic conditions like asthma and chronic obstructive pulmonary disease (COPD) are 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. Hospital admission rates serve as a proxy for primary care quality, so high admission rates may point to poor care co-ordination or care continuity. They may also indicate structural constraints such as the supply of family physicians (AHRQ, 2009; Starfield *et al.*, 2005).

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. COPD, on the other hand, is a progressive disease and people who have COPD usually have a smoking history. Many people with COPD respond well to bronchodilators but not to the same extent that asthmatics do.

Asthma is a very common chronic condition affecting between 150 to 300 million people worldwide and causing some 250 000 deaths globally each year (WHO, 2011b). It is estimated that around 30 million people have asthma in the European region (Masoli *et al.*, 2004). COPD affects around 64 million worldwide and currently is the fourth leading cause of death (WHO, 2011c). In Europe, COPD kills between 200 000 to 300 000 people each year and its economic burden is estimated to be EUR 102 billion per year (European Lung Foundation, 2011).

Figures 5.1.1 and 5.1.2 show an 11-fold difference in hospital admission rates for asthma and a five-fold difference for COPD between the highest and lowest country rates. For asthma, the Slovak Republic, the United States and Korea all have rates that are around double the OECD average. Conversely, Portugal, Canada, Mexico, Italy, Sweden and Germany have rates that are less than half the OECD average.

The high admission rates for the United States and Korea have persisted over time. Both countries face similar problems in terms of a less developed primary care system with deficits in the supply of family physicians (American Academy of Family Physicians, 2009; Macinko *et al.*, 2007; Kwon *et al.*, 2010; Cho and Rho, 2003).

Females have consistently higher rates for asthma admissions compared to males. On average, the female admission rate is 85% higher. Recent research shows that the incidence of asthma among women has increased and "that 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). The admission rate differences may therefore highlight the need for more effective and targeted care in primary care settings.

The gender specific breakdown for COPD is a mirror image of the asthma figure with males having consistently higher admission rates than females (except for Denmark, Iceland, Norway and Sweden). On average, males have an admission rate that is around 53% higher than females. This is partly due to higher incidence and prevalence of COPD among men associated with higher smoking rates.

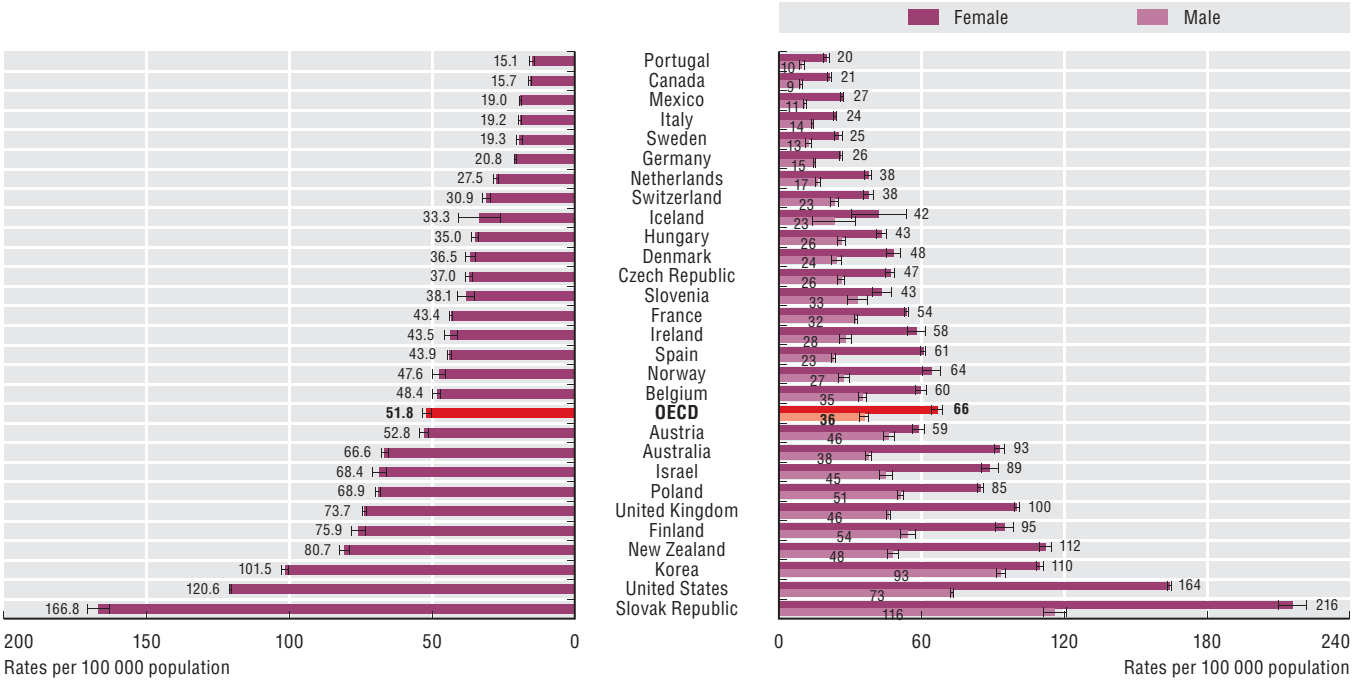
Ireland, New Zealand, Australia and Austria all have high admission rates for COPD relative to the OECD average. In Ireland, this high admission rate is associated with high smoking prevalence, a major risk factor for COPD. Portugal, France and Switzerland have rates that are less than half the OECD average.

Definition 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

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

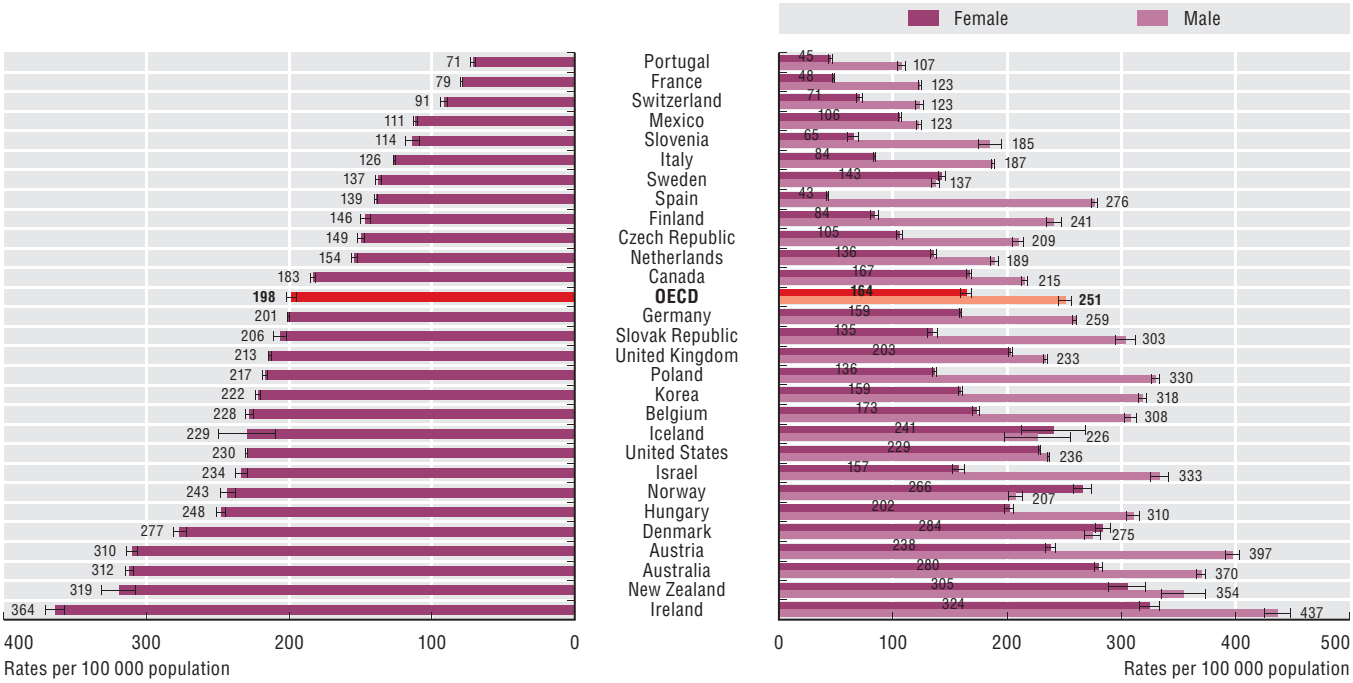


Note: Rates are age-sex standardised to 2005 OECD population. 95% confidence intervals are represented by ⊢⊣.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525039

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



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

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525058

5.2. Avoidable admissions: Uncontrolled diabetes

Diabetes is one of the most significant non-communicable diseases globally, and is also a leading cause of mortality. In the United States for example, where there are an estimated 26 million diabetics, diabetes was a contributory factor to around 230 000 deaths in 2007. In Europe, an estimated 55 million people live with diabetes. Across the world, the population of diabetics is expected to rise from 285 million in 2010 to 438 million by 2030 (IDF, 2009) (see also Indicator 1.10, "Diabetes prevalence and incidence").

Diabetes is implicated in cardiovascular disease, hypertension, kidney disease and lower limb amputation. It is also the leading cause of blindness in industrialised countries and the most common cause of end-stage renal disease in the United States, Europe, and Japan. Furthermore, studies have shown that people who have diabetes are more likely to have depression and find it more difficult to follow treatment guidelines (Mezuk *et al*., 2008; Egede, 2004).

Major risk factors for diabetes include being overweight or obese, physically inactive, having familial history of diabetes, having high blood pressure and having a history of cardiovascular disease. The multi-centre Diabetes Prevention Program (DPP, 2002) showed that modest weight loss and dietary changes can delay or even prevent the onset of diabetes. Researchers in the DPP trial also found that intensive counselling on effective diet, exercise, and behaviour modification reduced the risk of developing diabetes by almost 60%. This finding applied to all ethnic groups, and for both males and females. These lifestyle changes had their greatest impact on older age groups where the interventions led to a 70% reduction in risk. These findings underline the importance of having diabetes prevention and management programmes embedded in primary care settings.

Figure 5.2.1 shows that there are large variations in admission rates for uncontrolled diabetes across OECD countries. Austria, Hungary, Korea and Mexico have rates that are more than double the OECD average. Spain, Israel, Australia and New Zealand have very low admissions rates for uncontrolled diabetes. Despite having high disease prevalence, Canada has moderately low admission rates. This may be indicative of the impact of Canada's Integrated Strategy on Health Living and Chronic Disease and the Canadian Diabetes Strategy (PHAC, 2005). Male admission rates for uncontrolled diabetes are around 20% higher than females, though several countries, notably Finland, Sweden and Denmark, have considerably higher male admission rates compared to females.

Austria has taken steps to improve diabetes care via its disease management programme (DMP) which was implemented in 2007. Findings from a recent study showed that the Austrian diabetes DMP improved process quality and enhanced weight loss, but did not significantly improve diabetes control (Sönnichsen *et al*., 2010). The same research also noted that quality depends more on the care offered by a specific family physician than on the widespread implementation of a programme.

In Korea, the high rate of admissions can only be partly explained by higher diabetes prevalence related to changing lifestyle brought about by recent economic development (Cho, 2010). It is also linked to a less developed primary care infrastructure (Chun *et al*., 2009).

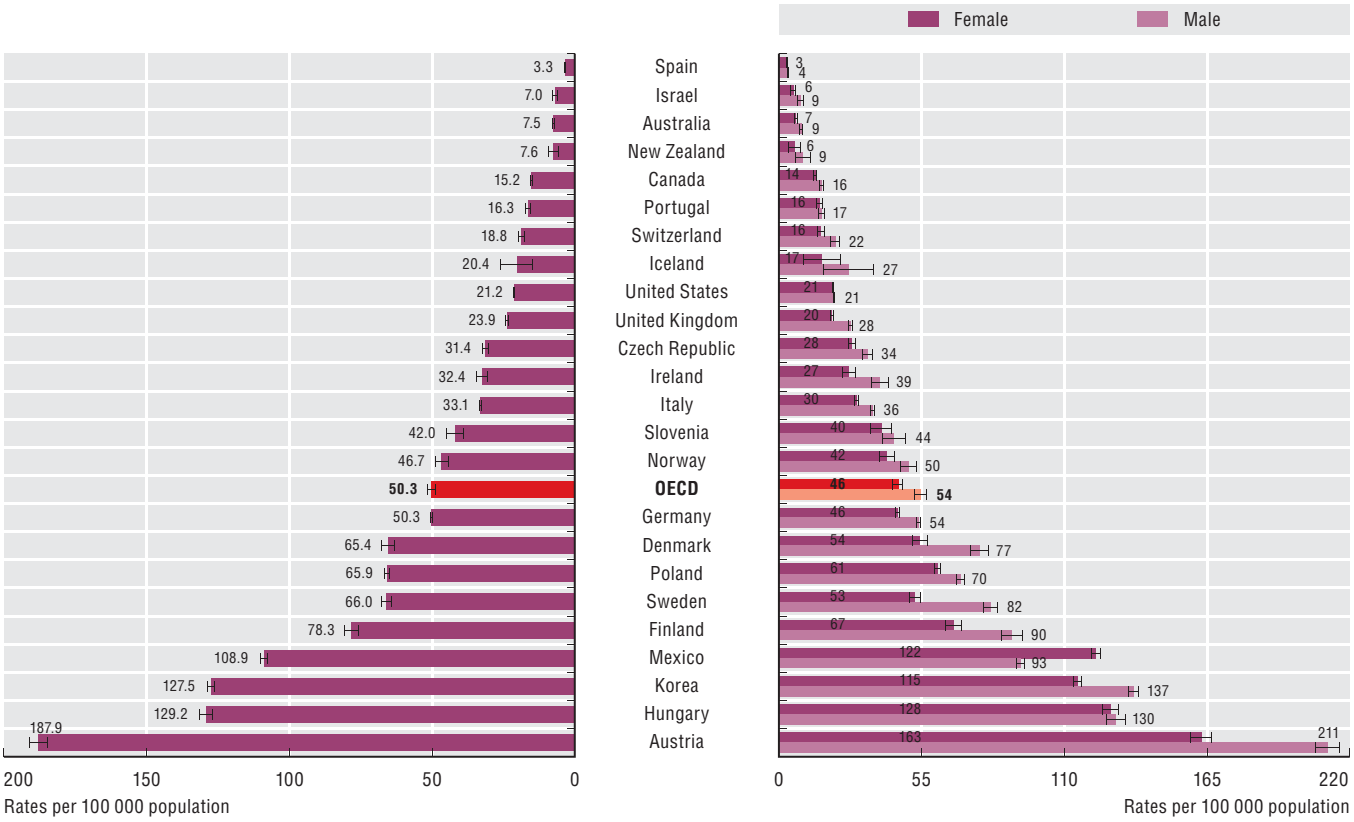
Figure 5.2.2 shows that uncontrolled diabetes admission rates do not appear to be strongly correlated with diabetes prevalence, with some countries such as Canada, Portugal and the United States having high prevalence rates but low admission rates. Conversely, Finland, Sweden and Denmark have lower prevalence rates but higher admission rates. The absence of any meaningful correlation suggests that factors other than disease "volume" are at play when explaining hospital admissions.

Definition and comparability

The indicator for uncontrolled diabetes is defined as the number of hospital discharges of people aged 15 years and over with diabetes Type I or II without mention of a short-term or long-term complication per 100 000 population. The rates have been adjusted to take account of the age and sex composition of each country's population structure. Differences in coding practices between countries may affect the comparability of data. Variations in disease classification systems, for example between ICD9-CM and ICD10-AM, may also affect comparability.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.2.1 Uncontrolled diabetes hospital admission rates, population aged 15 and over, 2009 (or nearest year)

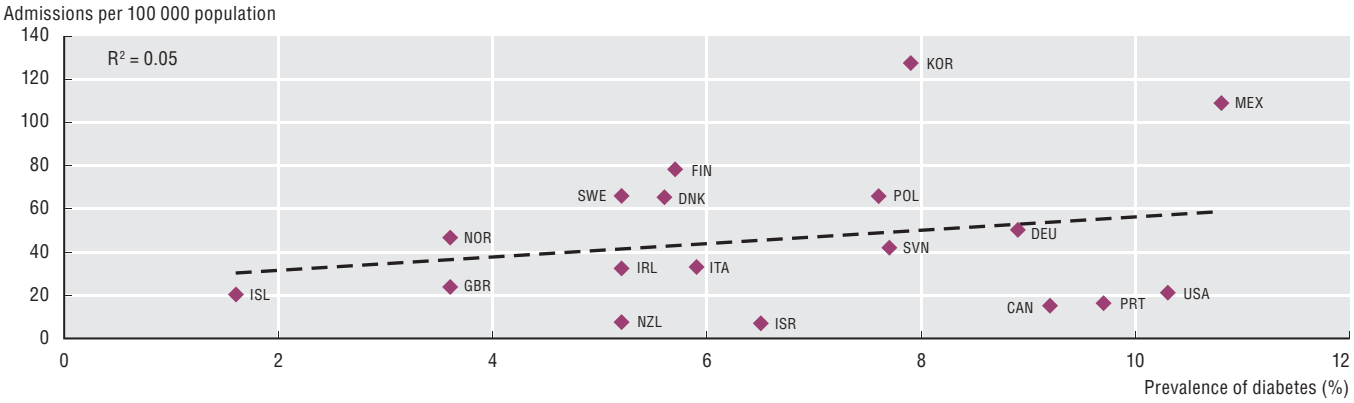


Note: Rates are age-sex standardised to 2005 OECD population. 95% confidence intervals are represented by ⊢⊣.

Source: *OECD Health Data 2011*.

StatLink http://dx.doi.org/10.1787/888932525077

5.2.2 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-standardised to 2005 OECD population.

Source: IDF (2009) for prevalence estimates; *OECD Health Data 2011* for hospital admission rates.

StatLink http://dx.doi.org/10.1787/888932525096

5.3. In-hospital mortality following acute myocardial infarction

Although coronary artery disease remains the leading cause of death in most industrialised countries, mortality rates have declined since the 1970s (see Indicator 1.3 "Mortality from heart disease and stroke"). Much of the reduction can be attributed to lower mortality from AMI, due to better treatment in the acute phase. Care for AMI has changed dramatically in recent decades, with the introduction of coronary care units in the 1960s (Khush *et al.*, 2005) and with the advent of treatment aimed at rapidly restoring coronary blood flow in the 1980s (Gil *et al.*, 1999). This success is all the more remarkable as data suggest that the incidence of AMI has not declined for most countries (Goldberg *et al.*, 1999; Parikh *et al.*, 2009). However, numerous studies have shown that a considerable proportion of AMI patients fail to receive evidence-based care (Eagle *et al.*, 2005).

AMI case-fatality rate is a good measure of acute care quality because it reflects the processes of care for AMI, such as effective medical interventions including thrombolysis, early treatment with aspirin and beta-blockers, and co-ordinated and timely transport of patients. AMI case-fatality rates have been used for hospital benchmarking in several countries including Canada, Denmark, the United Kingdom and the United States.

Crude and age-sex standardised in-hospital case-fatality rates within 30 days of admission for AMI ranges widely, with the lowest rates found in Denmark and Norway (Figure 5.3.1). The highest rate is in Mexico, where annual AMI mortality including deaths outside hospital is also the highest. Mexican case-fatality data only refer to hospitals in the public sector and the quality of pre-hospital emergency medical services is poor (Peralta, 2006), possibly contributing to the high mortality rates in hospitals. Japan has the second highest case-fatality rates although it has the lowest AMI mortality. Beyond the quality of care provided in hospitals, differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI may influence reported 30-day case fatality. The case-fatality rates for women are typically higher than for men, but the gender difference is not statistically significant for most countries. There are, however, some exceptions. Mexico has a large gender disparity, suggesting room for improving the survival of female patients with AMI.

Patient-based data, which follow patients in and out of hospitals and across hospitals, is a more robust indicator for international comparison as admission-based data may bias case-fatality rates downwards if unstable cardiac patients are commonly transferred to tertiary care centres and the transfer is recorded as a live discharge in a country. But it is only available for a relatively small group of countries. With the exception of Denmark, the relative performance of countries, measured by patient-based data, is similar to admission-based data (Figure 5.3.1). New Zealand and Sweden have a low case-fatality rate regardless of the measure used.

Case-fatality rates for AMI are decreasing over time, with the majority of countries recording statistically significant reductions between 2000 and 2009 (Figure 5.3.2). The improvement is particularly marked in Nordic countries, the Czech Republic, Ireland and Austria. Across countries, improvements in AMI case-fatality rates reflect advances in treatment such as the increased rates and timeliness of reperfusion therapy, which seeks to restore blood flow to the part of the heart muscle damaged during heart attack (Fox *et al.*, 2007; Tu *et al.*, 2009).

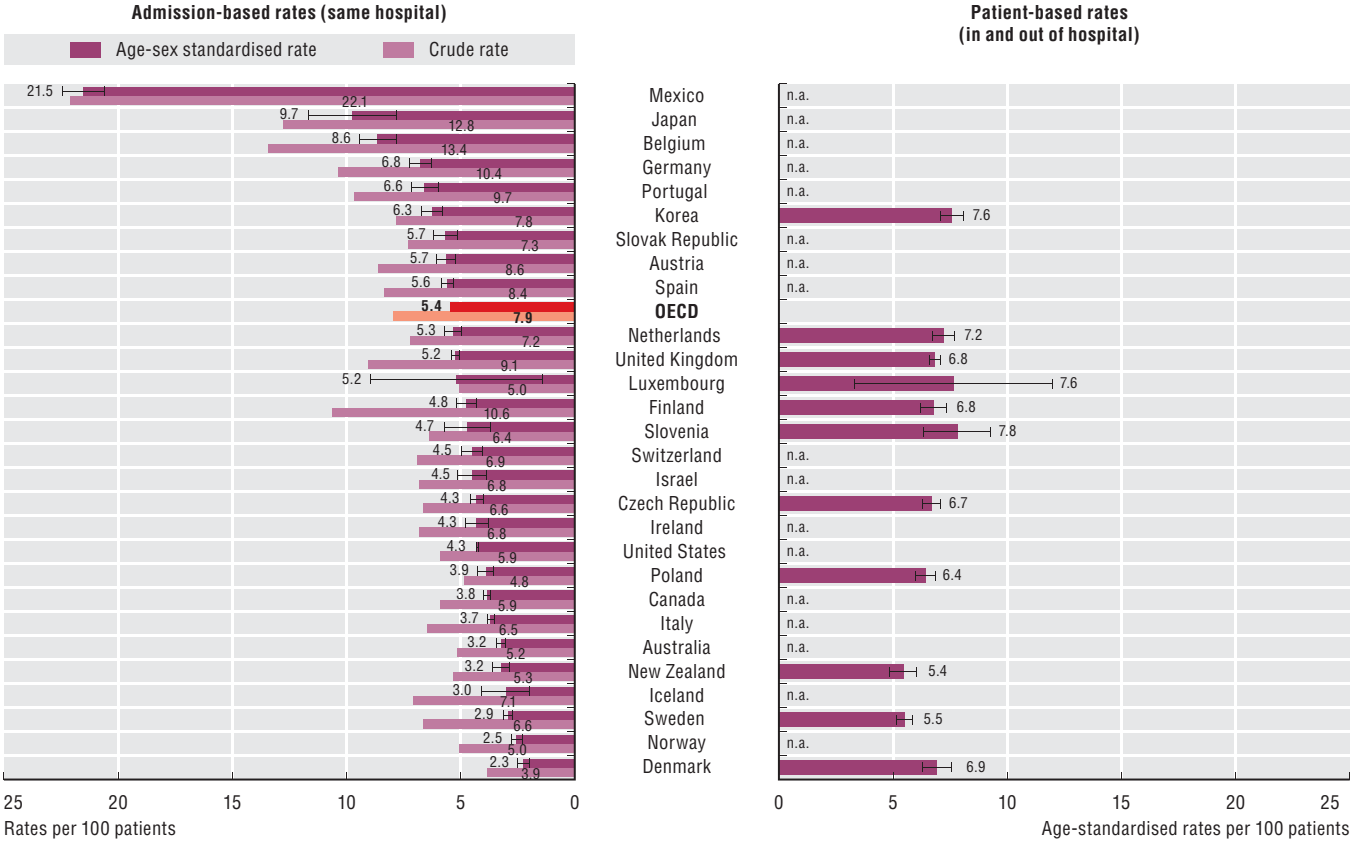
Definition and comparability

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, only some 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.

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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

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



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

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525115

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

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

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525134

5.4. In-hospital mortality following stroke

Stroke and other cerebrovascular disease is the fourth most common cause of death in OECD countries, accounting for over 8% of all deaths on average (OECD, 2011a). Estimates suggest that it accounts for 2-4% of health care expenditure and also significant costs outside of the health care system due to its impact on disability (OECD, 2003a). 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 decade. Until the 1990s, it was largely accepted that the damage to the brain was irreversible and treatment focused on prevention of complications and rehabilitation. But following the spectacular improvements in AMI survival rates that were achieved with early thrombolysis, clinical trials demonstrated clear benefits of thrombolytic treatment for ischemic stroke in Japan (Mori *et al.*, 1992), the United States (*e.g.* NINDS, 1995) and European countries (*e.g.* Hacke *et al.*, 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 after usual care (Seenan *et al.*, 2007).

Stroke survival reflects quality of acute care, particularly effective treatment methods such as thrombolysis and prompt and adequate care delivery. 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% on average across OECD countries in 2009, there were large differences between the highest rate in Mexico (17.6%) and Slovenia (9.7%) and the lowest rates in Korea and Japan (1.8%) (Figure 5.4.1). The average standardised rate for hemorrhagic stroke is 19% (Figure 5.4.2), about four times greater than the rate for ischemic stroke, reflecting the more severe effects of intracranial bleeding. The cross-country difference ranges between 6.5% in Finland and 38.6% in Belgium. Countries that achieve better survival for one type of stroke tend to do well for the other type. Given the initial steps of care for stroke patients are similar, this suggests that system-based factors play a role in explaining differences across countries. For example, Nordic countries (Denmark, Finland, Iceland, Norway and Sweden) have been at the forefront of establishing dedicated stroke units in hospitals, contributing to the below-average case-fatality rates for both ischemic and hemorrhagic stroke. Other factors such as patterns of hospital transfers, average length of stay, emergency retrieval times and average severity of stroke may also influence the rates.

Case-fatality rates for ischemic stroke have declined by 26% on average across OECD countries between 2000 and 2009 (Figure 5.4.3). The trend is similar for hemorrhagic stroke with an average reduction of 17% during the same period. These reductions suggest widespread improvement in the quality of care for stroke patients.

Definition and comparability

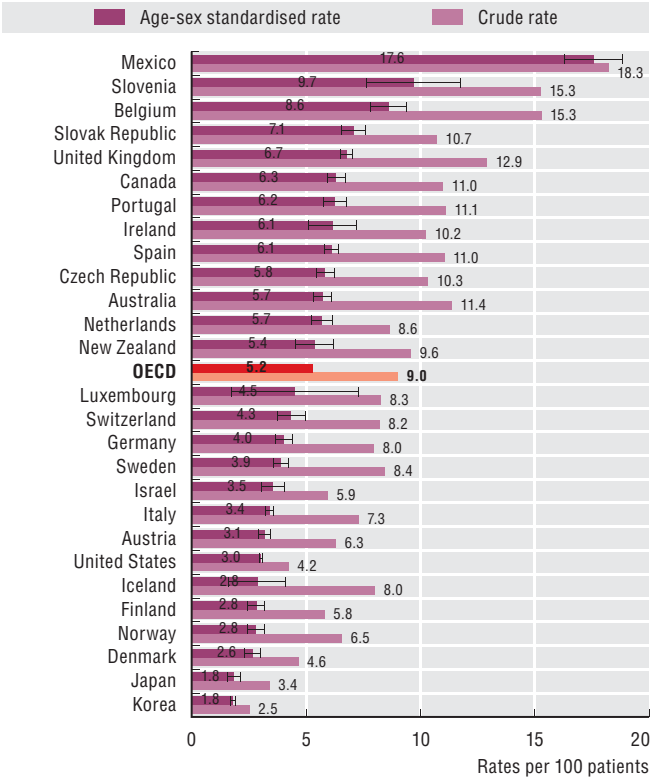
In-hospital case-fatality rate following ischemic and hemorrhagic stroke is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital. Ideally, rates would be based on individual patients; however, not all countries have the ability to track 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.

The Czech Republic, Denmark, Finland, Korea, Luxembourg, New Zealand, 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

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

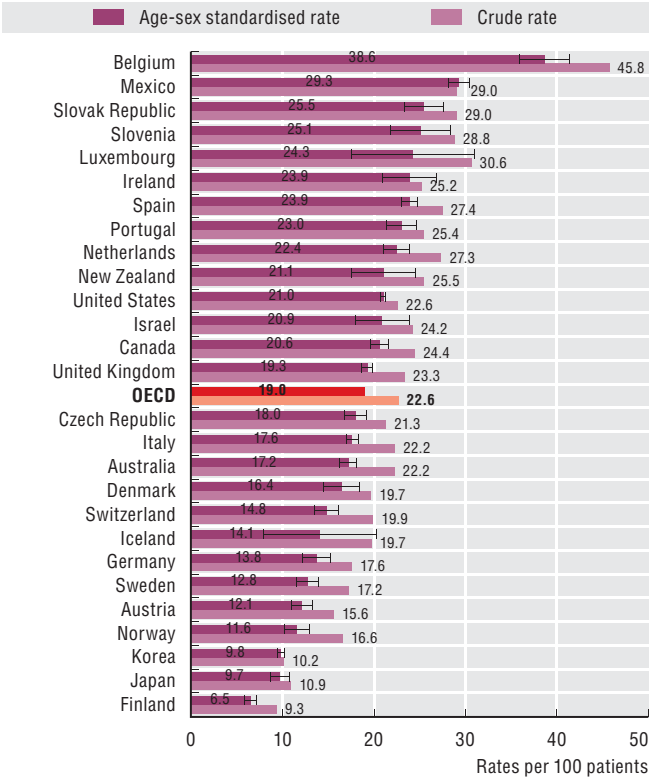


Note: Rates age-sex standardised to 2005 OECD population (45+). 95% confidence intervals represented by ⊢⊣.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525153

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

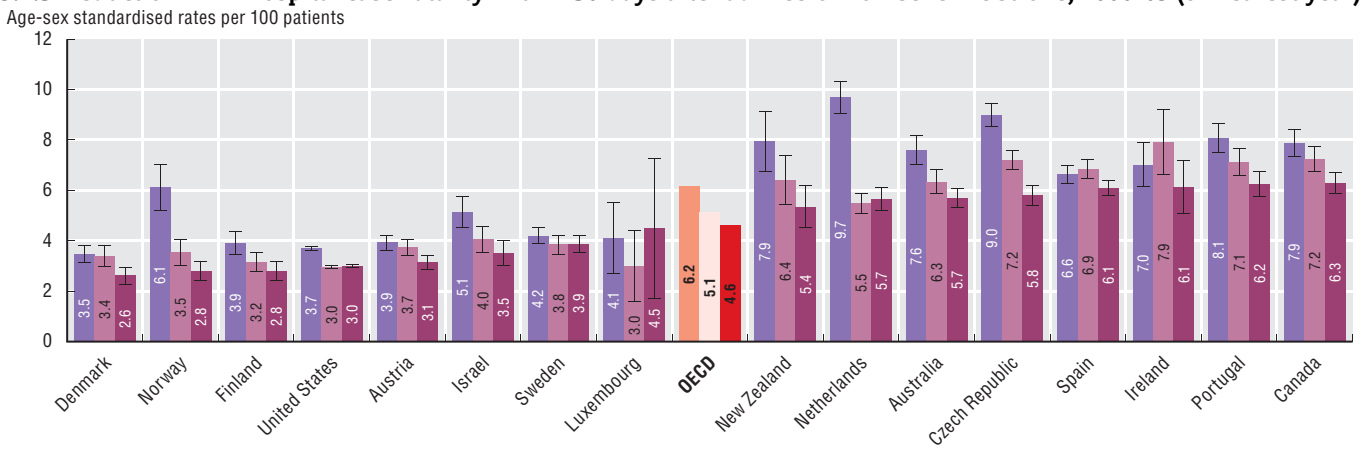


Note: Rates age-sex standardised to 2005 OECD population (45+). 95% confidence intervals represented by ⊢⊣.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525172

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



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

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525191

5.5. Obstetric trauma

Patient safety has recently become one of the most prominent issues in health policy, as increased evidence of a high rate of errors during the delivery of medical care has begun to undermine the trust that patients and policy makers have historically bestowed on the medical profession. As early as 1991, the landmark Harvard Medical Practice Study found that adverse events occur in 1 to 4% of all hospital admissions (Brennan *et al.*, 1991). The US Institute of Medicine integrated the available evidence on medical errors and estimated that more people die from medical errors than from traffic injuries or breast cancer (Kohn *et al.*, 2000). One recent Swedish study showed that over 12% of hospital admissions had adverse events, of which 70% were preventable, resulting in an increased length of stay of 6 days (Soop *et al.*, 2009). The Council of the European Union adopted in 2009 a Recommendation on patient safety, including the prevention and control of healthcare associated infections (European Union, 2009).

The obstetric trauma indicators are intended to 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. These types of tears are not possible to prevent, 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, high baby's birth weight, labour induction, occiput posterior position, prolonged second stage of labour and instrumental delivery.

The proportion of deliveries involving higher degree lacerations is a useful indicator of the quality of obstetrical care and can assist in reducing these adverse events. Obstetric trauma indicators have been used by the US Joint Commission as well as by different international quality initiatives analysing obstetric data. 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 5.5.1 and 5.5.2 show the variation in reporting rates of obstetric trauma during vaginal delivery with and without instrument. Canada, the United States and Sweden have the highest rates of obstetric trauma with instrument. Switzerland, Sweden and Denmark stand out as having the highest reported rates for obstetric trauma without instrument. There are no marked differences in the position of countries in relation to the OECD average between the two indicators. Belgium, Finland, France, Ireland, Israel, Italy, Portugal, Slovenia and Spain have consistently low reported obstetric trauma rates for both indicators. The difference in the incidence of anal sphincter tears between Finland and the other Nordic countries (Denmark, Norway, Sweden) may be explained by the variation in delivery method and episiotomy practice (Laine *et al.*, 2009). 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). Differences in indicator values between the countries may not only reflect safety of care, but also differences in recording and reporting practices. For example, Canada has very stringent rules for the coding of obstetric trauma. This may partly explain why the Canadian rates appear to be high in comparison with other countries.

Definition and comparability

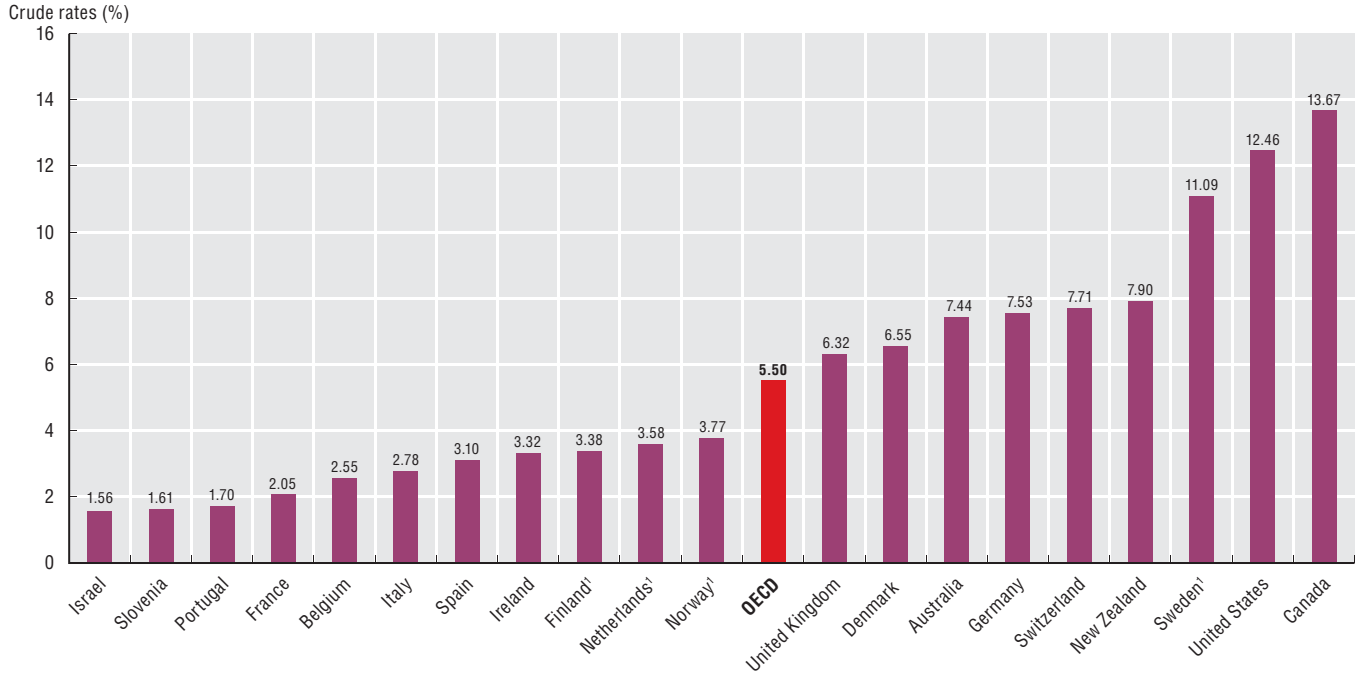
Patient safety indicators are derived from the Quality Indicators developed by the US Agency for Healthcare Research and Quality (AHRQ). AHRQ's Patient Safety Indicators (PSIs) are a set of indicators that provide information on hospital complications and adverse events following surgeries, procedures, and childbirth. The PSIs 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).

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, which may influence the results.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

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

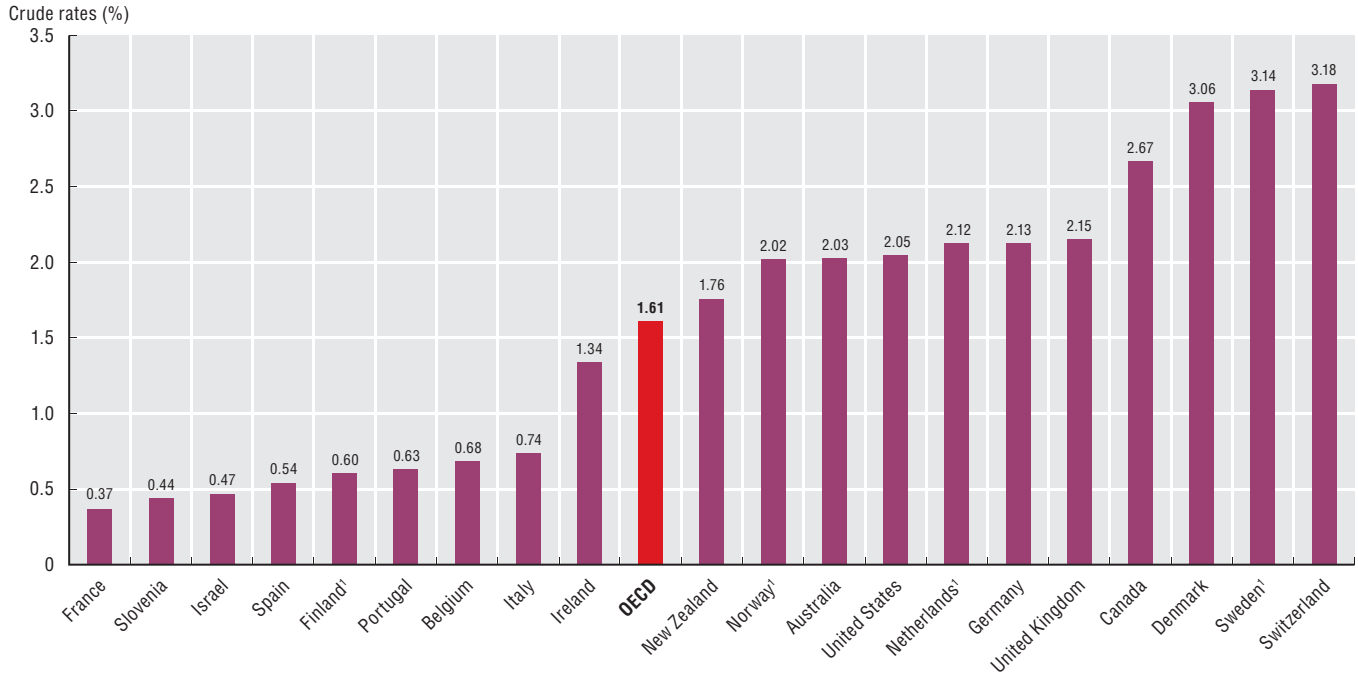


1. Obstetric register data.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525210

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



1. Obstetric register data.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525229

5.6. Procedural or postoperative complications

Efforts to improve patient safety have sparked interest in reporting sentinel and adverse events arising from health care. Sentinel events are rare but dramatic incidents where medical errors may lead to tangible harm to patients. These, sometimes referred to as "never events", indicate failure of safeguards to protect patients during care delivery. Foreign body left in during procedure is such an occurrence that reflects serious process problems. The indicator captures errors relating to the failure to remove surgical instruments (*i.e.* needles, knife blades, gauze swabs) at the end of a procedure. The most common risk factors that might cause retained bodies after surgery are emergencies, unplanned changes in procedure, changes in the surgical team during the procedure and patient obesity (Gawande *et al.*, 2003). Preventive measures include counting procedures, a methodical wound exploration and effective communication among the surgical team.

Adverse events are unintended incidents caused by health care that could lead to harm to patients. Such complications can never be fully avoided, given the high-risk nature of some interventions and the underlying health problems of patients. Thus, in contrast to the sentinel events, isolated adverse events do not necessarily indicate a patient safety issue. While accidental puncture or laceration during a surgical procedure is a recognised risk, increased rates of such complications may indicate system problems, such as inadequate training or fatigued health staff. 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. Sepsis after elective surgery is a severe complication that can lead to multiple organ dysfunction and death. It usually results from less severe infections, which should be avoided or properly treated. Many cases of postoperative sepsis can be prevented through the appropriate use of prophylactic antibiotics, sterile surgical techniques and good postoperative care.

Figures 5.6.1 to 5.6.4 show reported complication rates related to surgical and medical care. There are considerable differences across countries for these four indicators. For example, Switzerland has the highest rate for reported foreign bodies left in during procedure, a very low rate for postoperative pulmonary embolism or deep vein thrombosis, and the lowest rate for postoperative sepsis. A similar variance in indicator results can be found for Canada, Spain and France. Some countries have consistently higher (Australia, New Zealand) or lower reporting rates (Denmark, Germany).

Differences in procedural or postoperative patient safety indicators may reflect differences in recording and reporting practices rather than safety of care. In countries where documentation and hospital billing are not directly related, hospitals and physicians have less incentive to report diagnoses accurately and completely. Although there may be reservations whether the current results accurately reflect patient safety performance at the national level and are internationally comparable, these indicators show that numerous patients certainly 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 validity and reliability of patient safety measures based on administrative hospital data in the future.

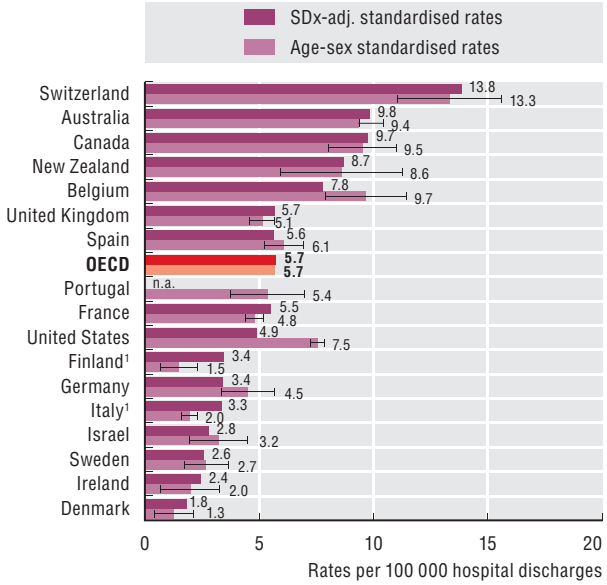
Definition and comparability

See Indicator 5.5 "Obstetric trauma" for definition, source and methodology underlying the patient safety rates. 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. 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. In addition, the patient safety rates have been adjusted by the average number of secondary diagnoses (SDx) (Drösler *et al.*, 2011) in order to improve inter-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 under-estimated.

Other differences in data reporting across countries may influence the calculated rates of patient safety indicators. These include 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").

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.6.1 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 ⊢⊣.

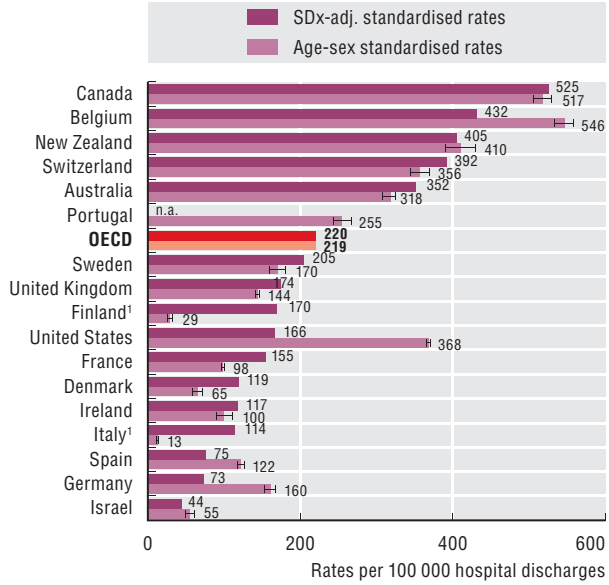
SDx: Secondary diagnoses adjustment.

1. The average number of secondary diagnoses is < 1.5.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525248

5.6.2 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 ⊢⊣.

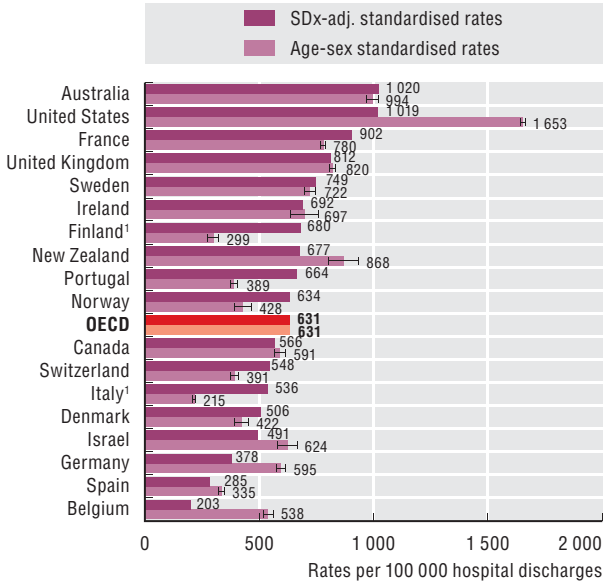
SDx: Secondary diagnoses adjustment.

1. The average number of secondary diagnoses is < 1.5.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525267

5.6.3 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 ⊢⊣.

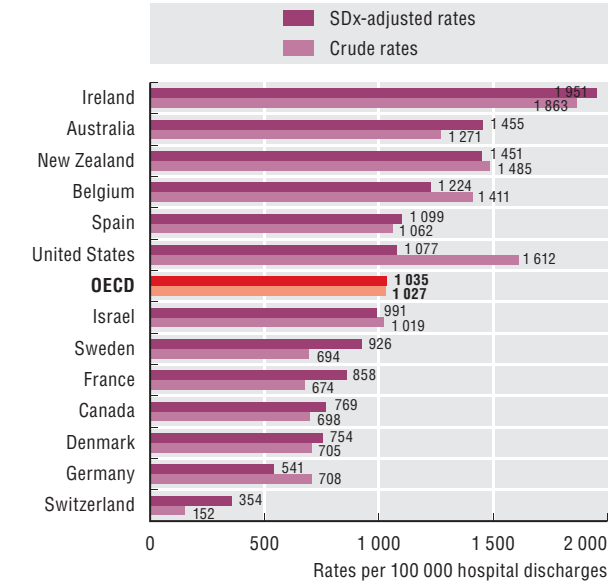
SDx: Secondary diagnoses adjustment.

1. The average number of secondary diagnoses is < 1.5.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525286

5.6.4 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 2011.

StatLink http://dx.doi.org/10.1787/888932525305

5.7. Unplanned hospital re-admissions for mental disorders

The burden of mental illness is substantial, accounting for between 3 and 16% of total expenditure on health across OECD countries. Severe disorders such as schizophrenia and bipolar disorder are among the top ten causes of years lost due to disability worldwide (WHO, 2008b).

Mental health care has become a policy priority in many OECD countries, coinciding with dramatic changes in the delivery of mental health services. Starting in the 1970s with de-institutionalisation and the development of modern psychiatric drugs, care has shifted from large psychiatric hospitals towards community-based integrated care involving a multidisciplinary team. Preventive and rehabilitative care and social integration have also been emphasised more than previously. Paradoxically, these shifts have made it harder to track mental health care at the population level, as few countries have a health information infrastructure suitable for following patients across a variety of delivery settings.

Patients with severe mental disorders still receive specialised care at hospitals but if appropriate and co-ordinated follow-up is provided after discharges, patients are not usually re-admitted to hospital within 30 days. A high rate of unplanned re-admissions is therefore an indicator of the quality of several dimensions of the mental health system. As part of monitoring quality of mental health care, unplanned 30 day hospital re-admission rates are used in organisations in different countries such as the Canadian Institute for Health Information, the Care Quality Commission in the United Kingdom and the National Mental Health Performance Monitoring System in the United States.

Re-admission rates for schizophrenia vary a lot across countries, with Nordic countries and Poland at the higher end, and the Slovak Republic and the United Kingdom at the lower end (Figure 5.7.1). Re-admission rates for bipolar disorders are also highest in Poland and in Nordic countries (Figure 5.7.2). Most countries have similar rates for men and women for both mental disorders.

Mental health care systems have been developing new organisational and delivery models over the past few decades. Some countries, such as Italy, Norway and the United Kingdom, use community-based "crisis teams" to stabilise patients on an outpatient basis, while Canada and the United States also emphasise community mental health care delivery. Other countries, such as Denmark and Finland, use interval care protocols to place unstable patients in hospital for short periods. Countries such as Denmark are also proactive in identifying patients in need of care through outreach teams following discharges, possibly leading to high re-admissions. A further development is a more patient-centred approach in countries such as Canada and the United Kingdom, involving patients in care and service plan development. These developments may also have some implications on re-admission rates and make it more complex to identify those re-admissions that are truly unplanned.

Unplanned re-admission is only one measure of the quality and performance of mental health care systems, and further indicators in domains such as treatment, care continuity, co-ordination and outcomes are needed for a better and more complete understanding of the performance of mental health care systems across countries.

Definition and comparability

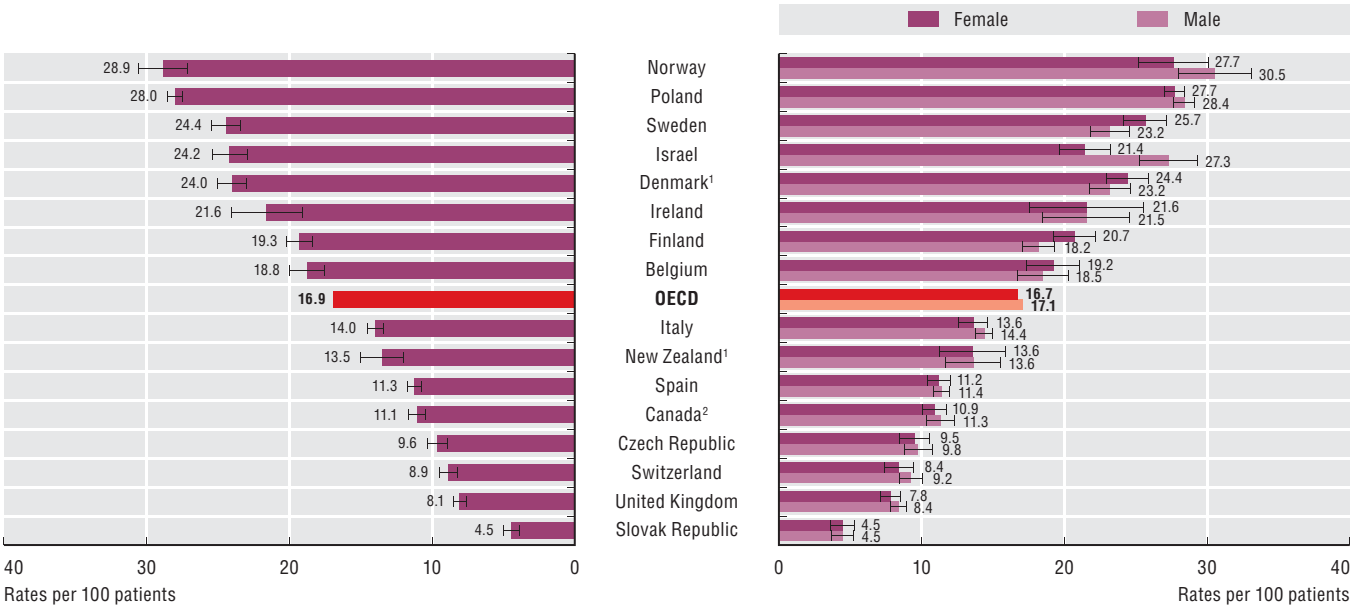
Few administrative databases can distinguish between unplanned and planned re-admissions. Therefore, the indicator is defined as the number of re-admissions per 100 patients with a diagnosis of schizophrenia or bipolar disorder. The denominator is comprised of all patients with at least one admission during the year for the condition as principal diagnosis or as one of the first two listed secondary diagnosis. The numerator is re-admissions for any mental disorder to the same hospital within 30 days of discharge but excludes same-day admissions (less than 24 hours). The data have been age-sex standardised based on the 2005 OECD population structure, to remove the effect of different population structures across countries.

The absence of unique patient identifiers in many countries does not allow the tracking of patients across hospitals. Rates are therefore biased downwards as re-admissions to a different hospital cannot be observed. However, the 11 countries which were able to estimate re-admission rates to the same or other hospitals, show that rates based on the two different specifications were closely correlated and the ranking of countries was similar (except for the Czech Republic), suggesting that re-admissions to the same hospital can be used as a valid approximation.

ICD-code specifications of hospital re-admissions for bipolar disorder have changed since the last data collection, so a direct comparison with previously published data is not possible.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.7.1 Schizophrenia re-admissions to the same hospital, 2009 (or nearest year)



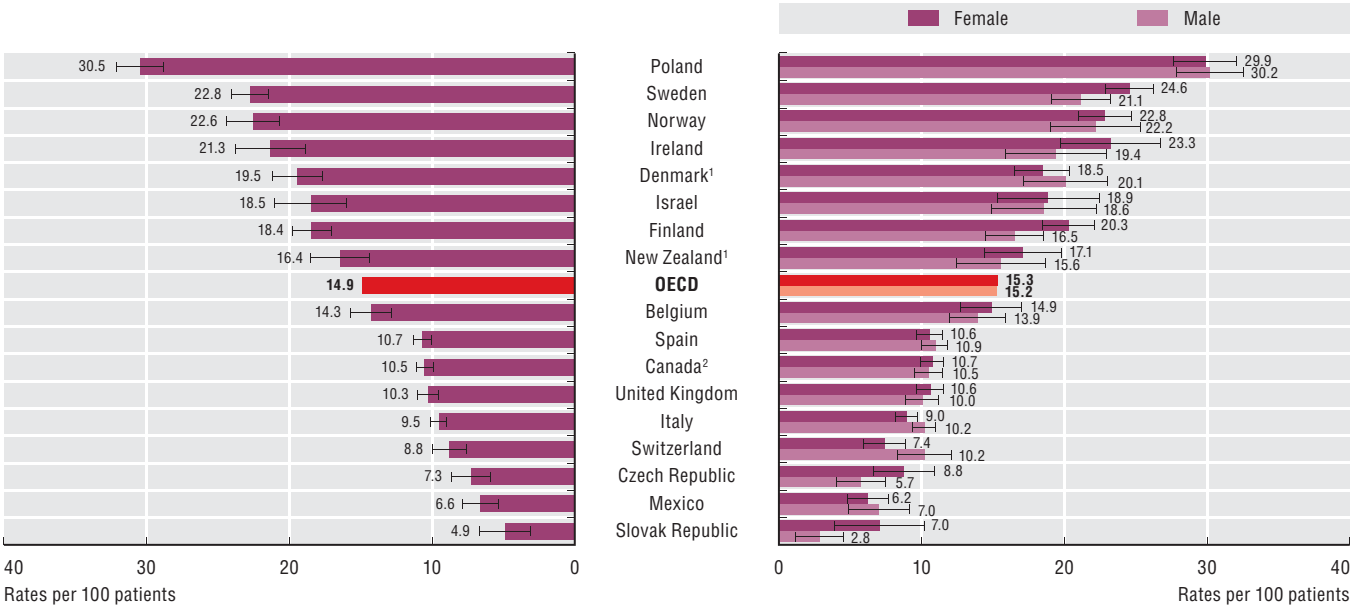
Note: Rates age-sex standardised to 2005 OECD population. 95% confidence intervals represented by ⊢⊣.

1. Data do not include patients with secondary diagnosis of schizophrenia and bipolar disorder.
2. Only re-admissions within 30 days of the initial hospitalisation were counted as re-admissions.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525324

5.7.2 Bipolar disorder re-admissions to the same hospital, 2009 (or nearest year)



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

1. Data do not include patients with secondary diagnosis of schizophrenia and bipolar disorder.
2. Only readmissions within 30 days of the initial hospitalisation were counted as readmissions.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525343

5.8. Screening, survival and mortality for cervical cancer

Cervical cancer is preventable and curable if detected early. The main cause of cervical cancer, which accounts for approximately 95% of all cases, is sexual exposure to the human papilloma virus, HPV (IARC, 1995; Franco *et al.*, 1999). Three indicators are presented to reflect variation in cervical cancer care across OECD countries: cervical cancer screening rates in women aged 20-69 years, five-year relative survival rates, and mortality rates.

The primary prevention of cervical cancer attributable to human papilloma virus types 16 and 18 by prophylactic vaccines has been shown to be highly effective and recommended in many countries worldwide (Shefer *et al.*, 2008; Koulova *et al.*, 2008). The secondary prevention of cervical cancer by the Pap-smear and HPV DNA testing increases the probability of detecting premalignant lesions which can be effectively treated. Population-based cancer screening programmes have been promoted by the Council of the European Union and the European Commission (European Union, 2003; European Commission, 2008c), but the periodicity and target groups vary among member states. There has been much discussion whether cervical cancer screening needs to be reevaluated and the cost-effectiveness investigated after introduction of HPV vaccination programmes (Goldhaber-Fiebert *et al.*, 2008; Wheeler *et al.*, 2009).

In 2009, screening rates for cervical cancer were the highest in the United States, at 86% (Figure 5.8.1). The United Kingdom, Norway and Sweden also achieved high coverage, with close to 80% of the target population. Screening rates were the lowest in the Slovak Republic and Hungary, although in Hungary a high proportion of screening activity takes place outside organised screening settings, resulting in underreporting. In several countries (Canada, Finland, Hungary, Iceland, Norway, the Slovak Republic, the United Kingdom and the United States), screening rates have declined at least slightly between 2000 and 2009.

Survival rates are one of the key measures of the effectiveness of health care systems and are commonly used to track progress in treating a disease over time. They reflect both how early the cancer was detected and the effectiveness of the treatment. Over the periods 1997-2002 and 2004-09, the five-year relative survival rates improved in most countries due to improved effectiveness of screening and treatment (Figure 5.8.2). In the most recent period (2004-09), survival rates continued to be the lowest in Ireland and the United Kingdom, while they were the highest in Norway and Korea.

Mortality rates reflect the effect of cancer care in past years and improved diagnosis of early-stage cancers with a better prognosis, as typically happens when screening is widespread. The mortality rates for cervical cancer declined for most OECD countries between 2000 and 2009, apart from Luxembourg, Ireland, Israel, Portugal and Greece (Figure 5.8.3). Mexico has experienced a sharp decrease in cervical cancer mortality from 14.5 per 100 000 females to 9.6, although it still has the highest rate among OECD countries.

Definition and comparability

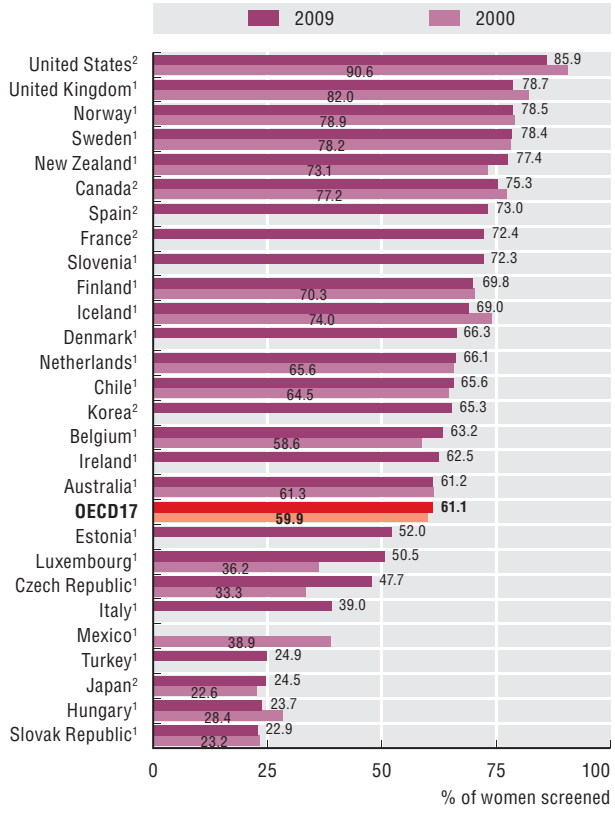
Screening rates for cervical cancer reflect the proportion of women who are eligible for a screening test and actually receive the test. As policies regarding screening periodicity and target population differ across countries, the rates are based on each country's specific policy. An important consideration is that some countries ascertain screening based on surveys and other based on encounter data, which may influence the results. Survey-based results may be affected by recall bias. If a country has an organised screening programme, but women receive care outside the programme, rates may be underreported.

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 1.4 "Mortality from cancer" for definition, source and methodology underlying the cancer mortality rates.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.8.1 Cervical cancer screening, percentage women screened aged 20-69, 2000 to 2009 (or nearest year)

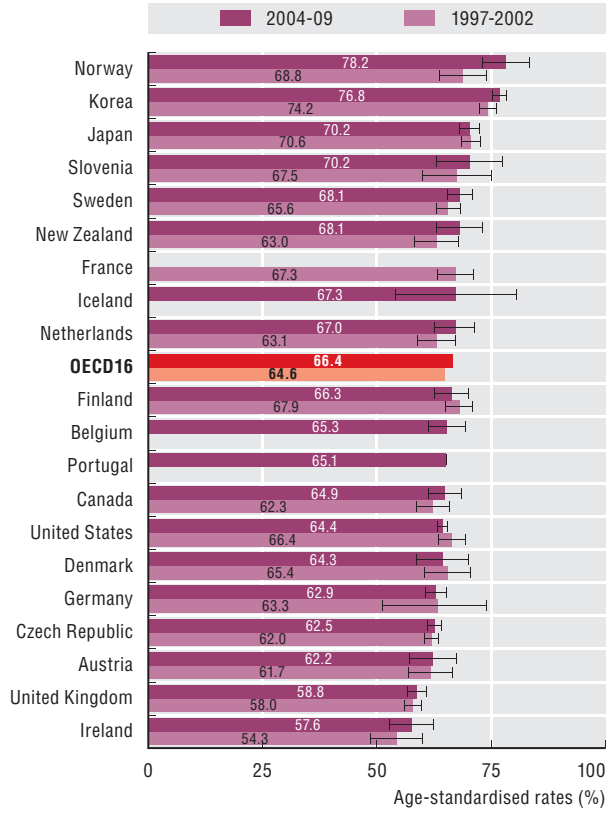


1. Programme. 2. Survey.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525362

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

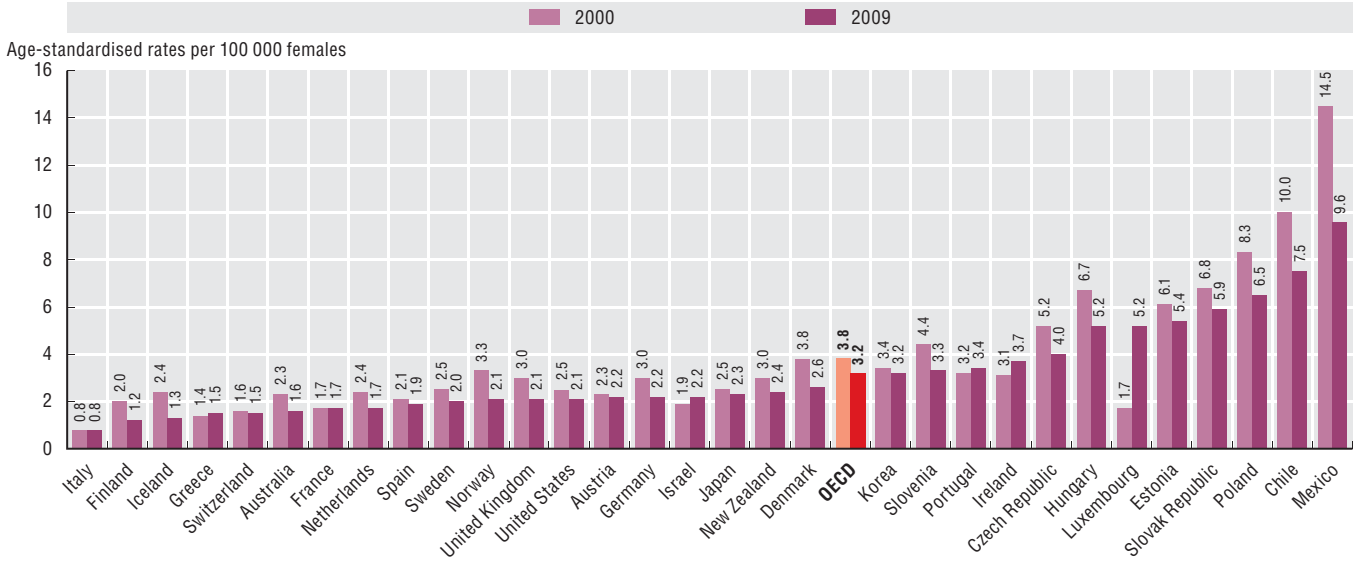


Note: 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525381

5.8.3 Cervical cancer mortality, females, 2000 to 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525400

5.9. Screening, survival and mortality for breast cancer

Breast cancer is the most prevalent form of cancer in women, accounting for almost 460 000 deaths worldwide in 2008 (WHO, 2011d). One in nine women will acquire breast cancer at some point in her life and one in thirty will die from the disease. There are a number of risk factors that increase a person's chance of getting this disease such as age, family history of breast cancer, estrogen replacement therapy, alcohol use and others. Overall spending for breast cancer care typically amounts to about 0.5-0.6% of total health expenditure (OECD, 2003a). Variation in breast cancer care across OECD countries is indicated by mammography screening rates in women aged 50-69 years, relative survival rates, and mortality rates.

The promotion of screening mammography (European Union, 2003) and self-examination have led to the detection of the disease at earlier stages. Most OECD countries have adopted breast cancer screening programmes as the most effective way for detecting the disease. The periodicity and population target groups vary across member states and are still the subjects of debate. EU guidelines (European Commission, 2006) promote a desirable target screening rate of at least 75% of eligible women in European countries. Screening rates continue to vary widely across OECD countries in 2009, ranging from 12% in Turkey and 16-17% in the Slovak Republic and Mexico, up to over 80% in Finland, the Netherlands and the United States (Figure 5.9.1). Some countries that already had high screening rates in 2000 experienced a reduction over the past decade, including Finland, the United States, Norway and the United Kingdom. By contrast, the rates have increased a lot in Hungary and the Slovak Republic, although they remain well below the OECD 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 neoadjuvant therapy have increased survival as well as the quality of life of survivors (Mauri *et al.*, 2008). Resources and patterns for breast cancer treatment vary substantially across OECD countries, leading to an interest in comparing survival rates under the EUROCARE, CONCORD and International Cancer Benchmarking Partnership studies (Sant *et al.*, 2009; Coleman *et al.*, 2008, 2011). The relative five-year breast cancer survival rates have improved in all countries between 1997-2002 and 2004-09 (Figure 5.9.2). Most OECD countries have survival rates of over 80%, with notable increases in Ireland, the Czech Republic and Slovenia. Recent studies suggest that some of the differences in survival rates could be due to variations in the implementation of screening programmes and different improvement rates between middle aged and elderly patients (Rosso *et al.*, 2010).

Mortality rates reflect the effect of improvements in early detection and treatment of breast cancer. Overall, the breast cancer mortality rates have declined in most OECD countries over the past decade (Figure 5.9.3). Improvements were substantial in Estonia, the Czech Republic, the Netherlands, the United Kingdom, Luxembourg and Norway. The exceptions are Korea, Japan, Iceland and Mexico, but the increases in these countries were modest and the mortality rates continue to be among the lowest in OECD countries.

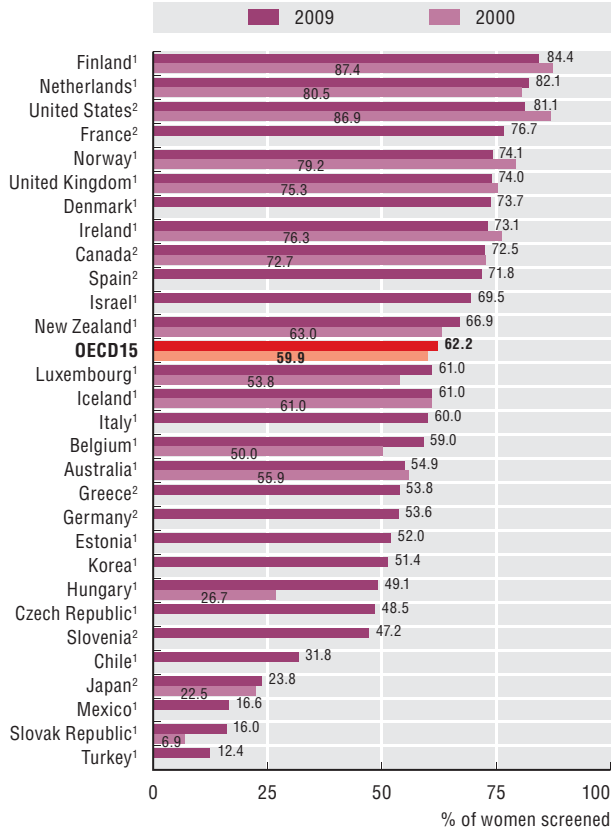
Definition and comparability

Mammography screening rates reflect the proportion of eligible women patients 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 screening programme, but women receive care outside of the programme, rates may be underreported.

Survival rates and mortality rates are defined in Indicator 5.8 "Screening, survival and mortality for cervical cancer".

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.9.1 Mammography screening, percentage of women aged 50-69 screened, 2000 to 2009 (or nearest year)

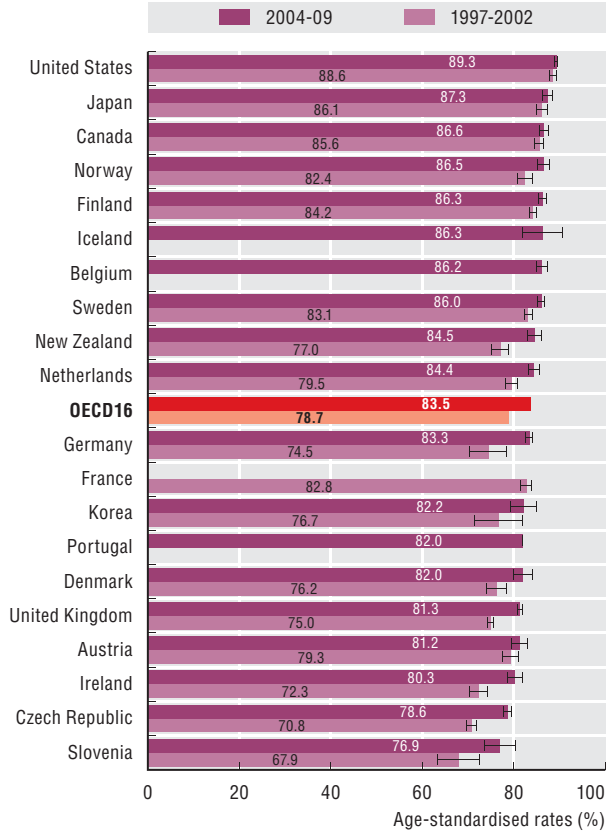


1. Programme. 2. Survey.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525419

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

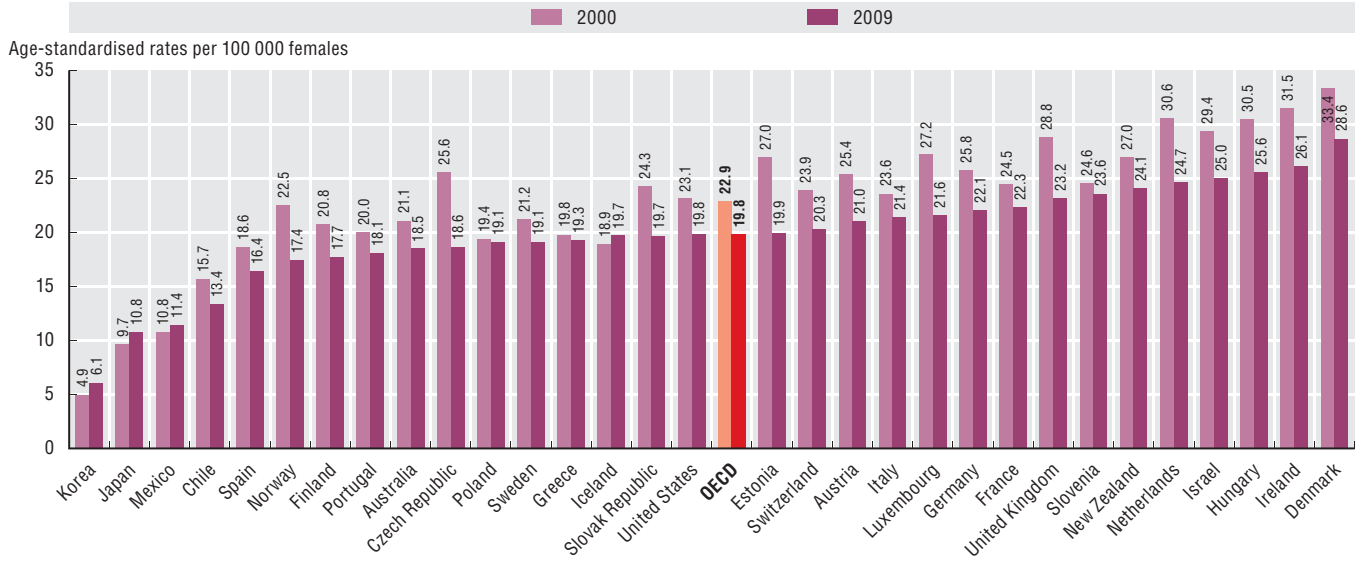


Note: 95% confidence intervals are represented by ⊢⊣.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525438

5.9.3 Breast cancer mortality, females, 2000 to 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525457

5.10. Survival and mortality for colorectal cancer

Colorectal cancer is the third most commonly diagnosed form of cancer worldwide, after lung and breast cancer, with approximately one million new cases diagnosed per year (Parkin *et al.*, 2005). 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. The disease is more common in the United States and Europe, and is rare in Asia. In Asian countries where people are gradually adopting western diets, such as Japan, the incidence of colorectal cancer is increasing (IARC, 2011). It is estimated that approximately 610 000 people worldwide died due to colorectal cancer in 2008 (WHO, 2011d). Total spending on the treatment of colorectal cancer in the United States is estimated to reach USD 14 billion per year (Mariotto *et al.*, 2011). Two indicators are presented to reflect variation in outcomes for patients with colorectal cancer across OECD countries: five-year relative survival rates and mortality rates.

Colorectal cancer screening is recommended by using fecal occult blood testing, sigmoidoscopy or colonoscopy in adults, beginning at age 50 and continuing until age 75 (USPSTF, 2008). These diagnostic methods are effective in detecting early-stage cancer and adenomatous polyps. Although organised screening programmes are being introduced or piloted in several OECD countries, data on screening rates for colorectal cancer are not yet available at an international level.

Colorectal survival rates have been used to compare European countries in the EUROCARE study (Sant *et al.*, 2009) and around the world in the CONCORD study (Coleman *et al.*, 2008). Advances in diagnosis and treatment 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. All countries show improvement in survival between 1997-2002 and 2004-09 (Figure 5.10.1). Japan and Iceland have the highest relative survival rates, at over 66%. The Czech Republic has the lowest rate, although survival rates have increased remarkably from 41% to nearly 50% between the two periods. Recent data from the EUROCARE project showed that survival for colorectal cancer continued to increase in Europe, and in particular in eastern European countries (Verdecchia *et al.*, 2007).

There are differences in colorectal cancer survival between genders across OECD countries (Figure 5.10.2). In nearly all countries, survival rates are higher for females, with the exception of Korea.

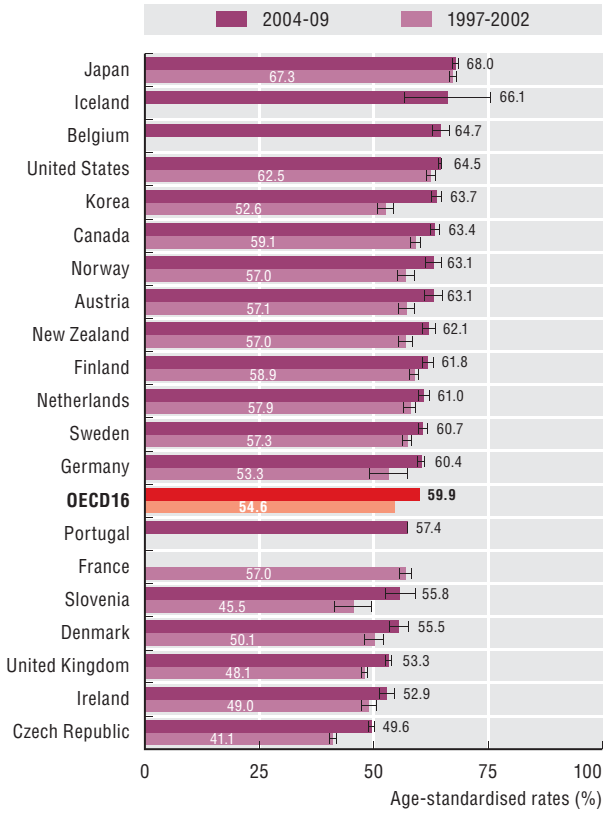
Mortality rates reflect the effect of cancer care and changes in incidence, thus careful interpretation of the relationship between survival and mortality trends is required (Dickman and Adami, 2006). Most countries experienced a decrease in mortality for colorectal cancer between 2000 and 2009 (Figure 5.10.3), with the exceptions of Korea, Portugal, Slovenia, Poland, Mexico, Greece, Chile and Estonia. Central and eastern European countries tend to have higher mortality rates than other OECD countries. Despite a decrease in mortality 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. Countries with high relative survival rates, like Japan, Iceland and the United States, also have below-average mortality rates.

Definition and comparability

Survival and mortality rates are defined in Indicator 5.8 "Screening, survival and mortality for cervical cancer".

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

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

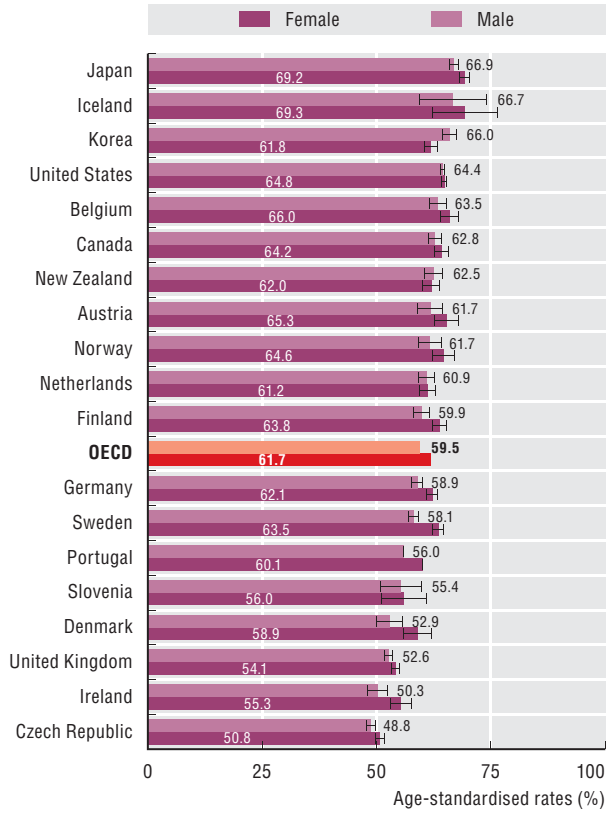


Note: 95% confidence intervals represented by ⊢⊣.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525476

5.10.2 Colorectal cancer, five-year relative survival rate by sex, 2004-09 (or nearest period)

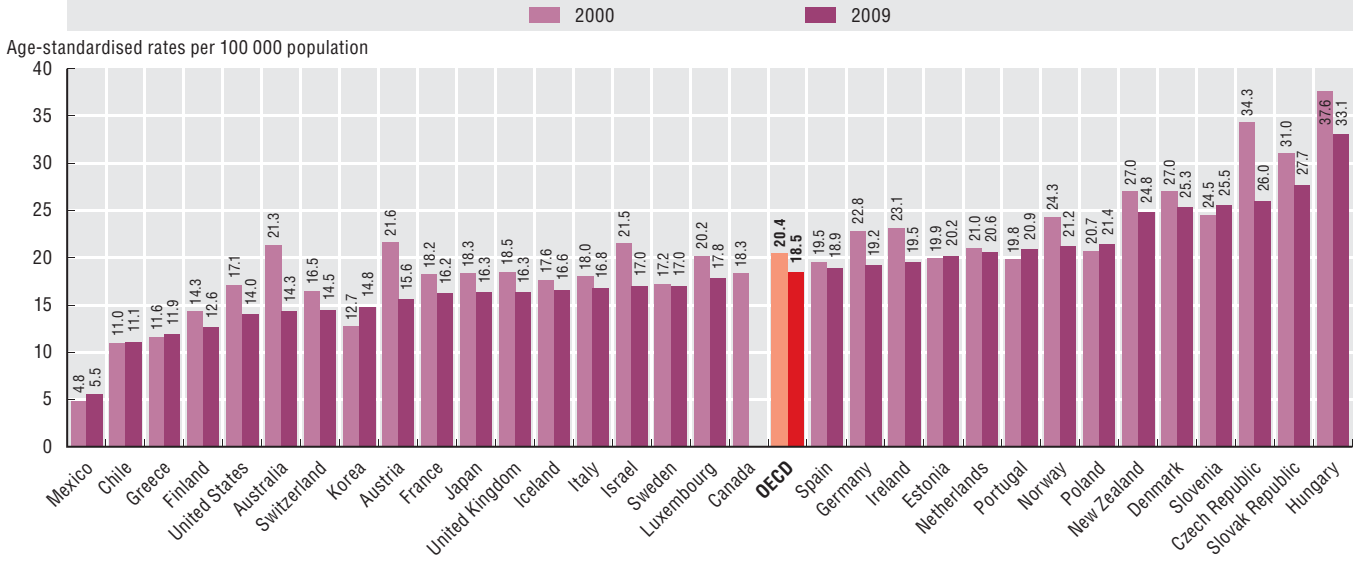


Note: 95% confidence intervals represented by ⊢⊣.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525495

5.10.3 Colorectal cancer mortality 2000 to 2009 (or nearest year)



Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525514

5.11. Childhood vaccination programmes

Childhood vaccination continues to be one of the most cost-effective health policy interventions. All OECD countries or, in some cases, sub-national jurisdictions have established vaccination programmes based on their interpretation of the risks and benefits of each vaccine. Coverage of these programmes can be considered as a quality of care indicator. Pertussis, measles and hepatitis B are taken here as examples as they represent in timing and frequency of vaccination the full spectrum of organisational challenges related to childhood vaccination.

Vaccination against pertussis (often administered in combination with vaccination against diphtheria and tetanus) and measles is part of almost all programmes, and reviews of the evidence supporting the efficacy of vaccines against these diseases have concluded that the respective vaccines are safe and highly effective. In Europe, the gradual uptake of the measles vaccine has meant that measles incidence is around one-tenth of the rate of the early 1990s.

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. In 2004, it was estimated that over 350 million people were chronically infected with the hepatitis B virus worldwide and at risk of serious illness and death (WHO, 2009b). In 2007, more than 170 countries had already begun to follow the WHO recommendation to incorporate hepatitis B vaccine as an integral part of their national infant immunisation programme. In countries with low levels of hepatitis B (*e.g.* Australia, New Zealand, northern and western Europe and North America), WHO indicates that routine hepatitis B vaccination should still be given high priority, since a high proportion of chronic infections are acquired during early childhood (WHO, 2004b).

Figures 5.11.1 and 5.11.2 demonstrate that the overall vaccination of children against measles and pertussis (including diphtheria and tetanus) is high in OECD countries. In most countries, more than 95% of 2-year-old children receive the recommended measles and pertussis vaccination, and rates for all countries are above 75%.

Figure 5.11.3 shows that the average percentage of children aged 2 years who are vaccinated for hepatitis B across countries with national programmes is also over 95%. However, a number of countries do not currently require children to be vaccinated by age two, or do not have routine programmes and consequently the rates for these countries are significantly lower than for the other countries. For example, in Denmark and Sweden, vaccination against hepatitis B is not part of the general vaccination programme, and is only recommended to specific risk groups. While Canada implemented universal hepatitis B vaccination for adolescents, not all provinces and territories offer programmes in early infancy (Public Health Agency of Canada, 2009; Mackie *et al.*, 2009). In France, hepatitis B vaccination remains controversial, given ongoing speculation over possible side effects, but vaccination coverage among children under 2 has increased in recent years.

Definition and comparability

Vaccination rates reflect the percentage of children at either age one or two 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.

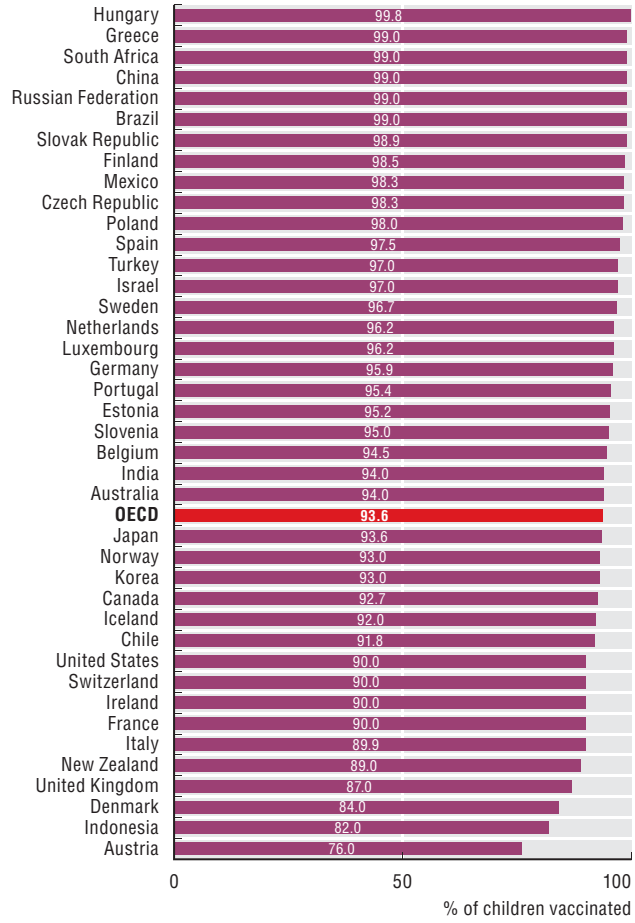
Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.11.1 Vaccination rates for pertussis, children aged 2, 2009 (or nearest year)

Source: *OECD Health Data 2011*; WHO (2011f).

StatLink http://dx.doi.org/10.1787/888932525533

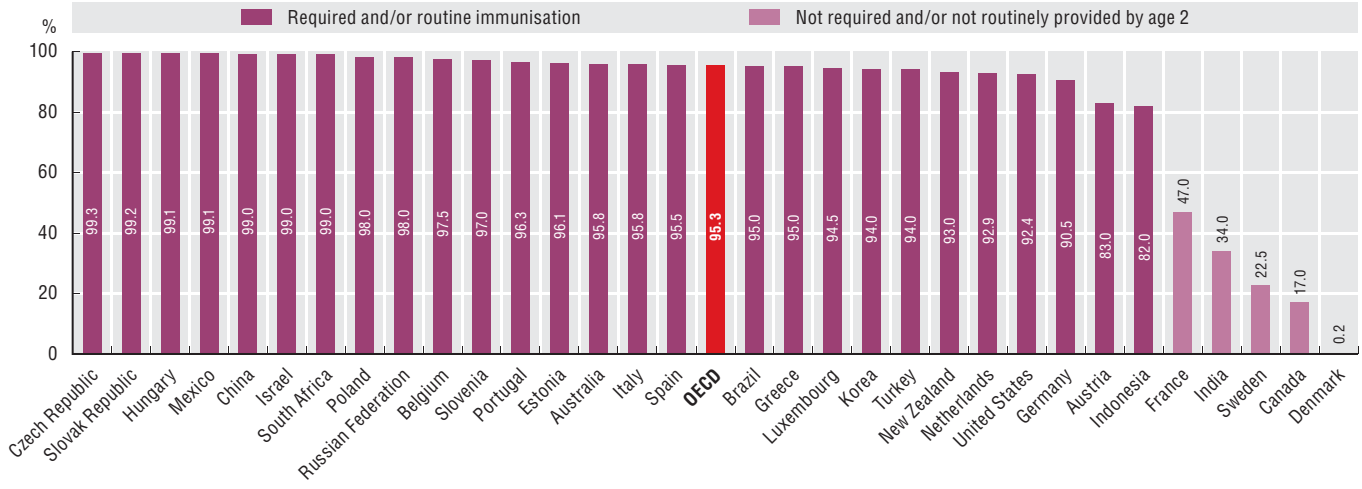
5.11.2 Vaccination rates for measles, children aged 2, 2009 (or nearest year)



Source: *OECD Health Data 2011*; WHO (2011f).

StatLink http://dx.doi.org/10.1787/888932525552

5.11.3 Vaccination rates for hepatitis B, children aged 2, 2009 (or nearest year)



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

Source: *OECD Health Data 2011*; WHO (2011f).

StatLink http://dx.doi.org/10.1787/888932525571

5.12. Influenza vaccination for older people

Influenza is a common infectious disease worldwide and affects persons of all ages. For example, on average, between 5% and 20% of the population in the United States contracts influenza each year (CDC, 2009). Most people with the illness recover quickly, but elderly people and those with chronic medical conditions are at higher risk for complications and even death. Between 1979 and 2001, on average, influenza accounted for more than 200 000 hospitalisations and 36 000 deaths per year in the United States (CDC, 2009). The impact of influenza on the employed population is substantial, even though most influenza morbidity and mortality occurs among the elderly and those with chronic conditions (Keech *et al.*, 1998). In Europe, influenza accounts for around 10% of sickness absence from work, while the cost of lost productivity in France and Germany has been estimated to be in the range of USD 9.3 billion to 14.1 billion per year (Szucs, 2004).

Immunisation against seasonal influenza (or flu) for older people has become increasingly widespread in many OECD countries over the past decade. Influenza vaccination for older people and patients with chronic conditions is strongly recommended by governments and vaccination experts in Europe, the United States and other countries (Nicholson *et al.*, 1995).

Figure 5.12.1 shows that, in 2009, the percentage of the population aged 65 and over who were vaccinated against influenza was 56% on average across OECD countries. However, there is a wide variation in vaccination rates, ranging from 1% in Estonia, 22 % in Slovenia and the Czech Republic, up to 75% in Australia, 77% in the Netherlands, and 88% in Chile and Mexico. The high rate in Chile reflects the participation in an annual widespread vaccination campaign. The rate in Mexico likely reflects the intensive vaccination activities related to the 2009 H1N1 pandemic.

Figure 5.12.2 indicates that while the OECD average increased markedly between 1999 and 2004, it remained relatively stable between 2004 and 2009. Since 2004, some countries marginally increased their coverage whereas others reduced their coverage, most notably some of the countries which were already below the OECD average, such as Slovenia and Hungary.

A number of factors have contributed to the current high levels in influenza immunisation rates in some OECD countries, including greater acceptance of preventive health services by patients and practitioners, improved public health insurance coverage for vaccines and wider delivery by health care providers other than physicians (Singleton *et al.*, 2000). A number of barriers need to be overcome in other countries if they wish to further increase their coverage rates. For example, possible reasons put forward for the relatively low vaccination rates in Austria include poor public awareness, inadequate insurance coverage of related costs and lack of consensus within the Austrian medical profession about the importance of vaccination (Kunze *et al.*, 2007).

Particularly virulent strains of the virus, similar to the H5N1 avian influenza sub-type, can cause pandemics with a much wider impact than seasonal influenza. The potential impact of influenza not just on the health of people but also on economic activity has been demonstrated again by the 2009 H1N1 epidemic (also referred to as "swine flu"). Although assessments of the economic impact of the H1N1 epidemic differ, the World Bank estimated in 2008 that a severe flu pandemic could cost the global economy up to 4.8% of world domestic product (Burns *et al.*, 2008).

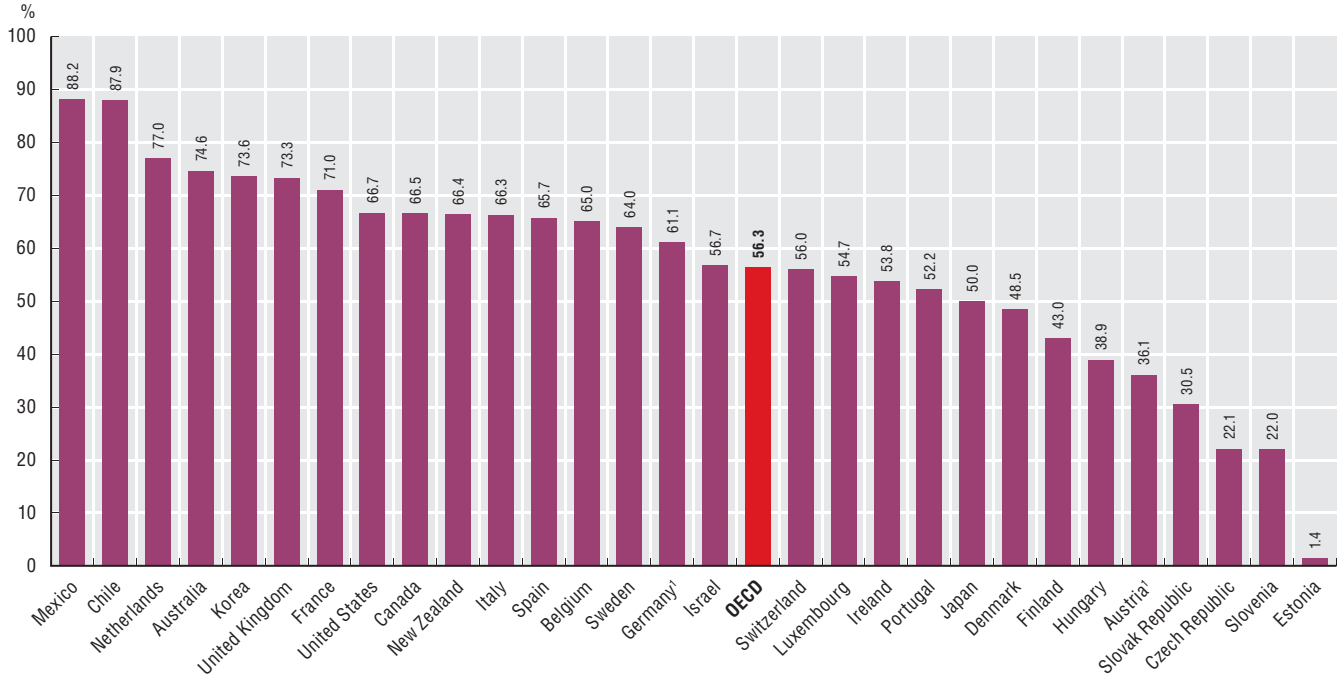
WHO reports that vaccines are one of the most valuable ways to protect people during influenza epidemics and pandemics. Other measures include anti-viral and other drugs, social distancing and personal hygiene. Established national infrastructure and processes for seasonal vaccination programmes can signal an enhanced preparedness to respond to an influenza outbreak. However, scientific evidence suggests that the seasonal influenza vaccines that are routinely provided across OECD countries offer little or no protection against influenza A (H1N1) (WHO, 2009c).

Definition 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.12.1 Influenza vaccination coverage, population aged 65 and over, 2009 (or nearest year)

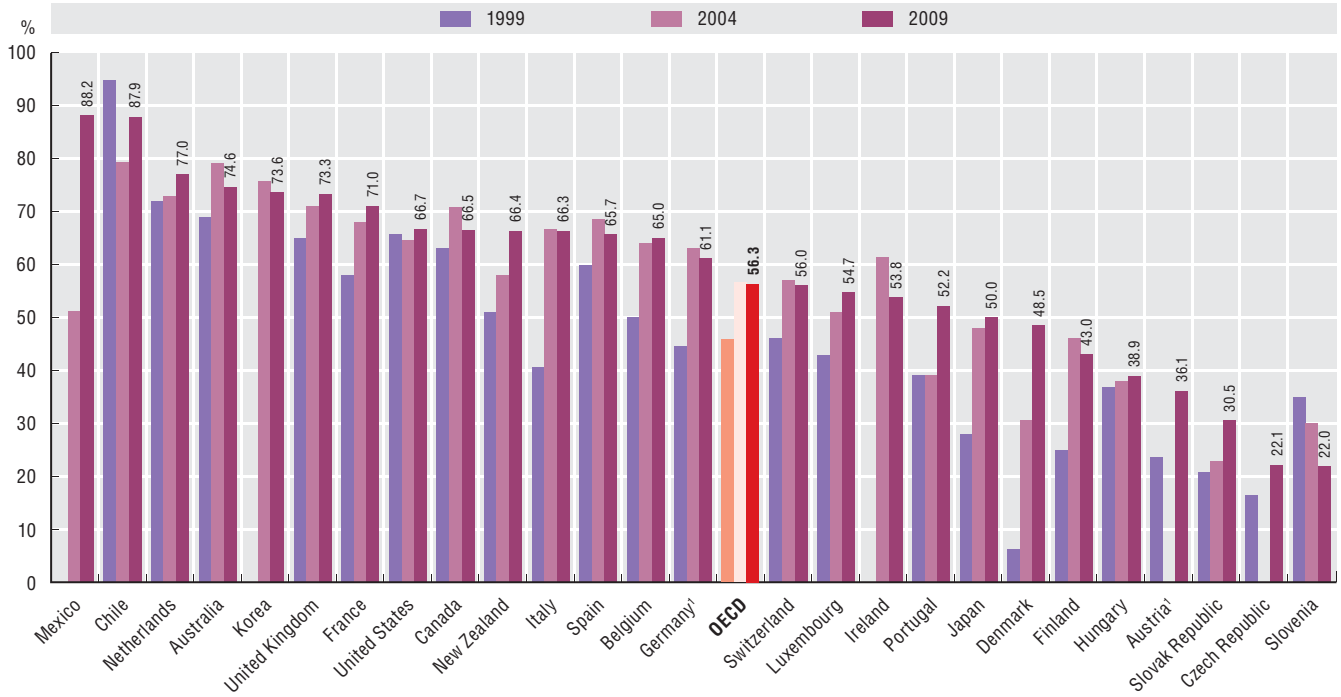


1. Population aged 60 and over.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525590

5.12.2 Vaccination rates against influenza, population aged 65 and over, 1999-2009 (or nearest year)



1. Population aged 60 and over.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525609

6. ACCESS TO CARE

6.1. Unmet health care needs

6.2. Coverage for health care

6.3. Burden of out-of-pocket health expenditure

6.4. Geographic distribution of doctors

6.5. Inequalities in doctor consultations

6.6. Inequalities in dentist consultations

6.7. Inequalities in cancer screening

6.8. Waiting times

6.1. Unmet health care needs

Most OECD countries aim to provide equal access to health care for people in equal need. One method of gauging equity of access to services is through assessing reports of unmet needs for health care for some reason. The problems that patients report in getting care when they are ill or injured often reflect significant barriers to care.

Some common reasons that people give 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 others, or that they had to travel too far to receive care. Differences in the reporting of unmet care needs *across* countries could be due to differences in survey questions, because of socio-cultural reasons, or because of reactions to current national health care debates. 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 out-of-pocket payments (see Indicators 6.2 "Coverage for health care" and 6.3 "Burden of out-of-pocket health expenditure").

In most OECD countries, a majority of the population report no unmet care needs. However, in a European survey undertaken in 2009, significant proportions in some countries reported having unmet needs. Generally, it is women, and people in low-income groups who report not getting the care they need.

Three possible reasons that might lead to access problems are presented in Figure 6.1.1. In Greece, Italy, Poland and Portugal, the most common reason is treatment cost. Although fewer than five per cent of survey respondents in these countries indicated that they were affected, the burden fell heaviest on low income earners. Waiting times were an issue for some in Poland, Finland and Estonia. Travelling distance did not feature as a major problem except in Norway, where one-third of the small number of persons indicating that they had an unmet care need said that it was because of the distance they had to travel to receive care.

A larger proportion of the population indicates unmet needs for dental care than for medical care. Portugal (14.5%) and a group of countries including Iceland, Sweden, Norway, Italy and Poland (all around 10%) reported the highest rates in 2009 (Figure 6.1.2). Large inequalities in unmet dental care needs were evident between high and low income groups in Portugal and Norway, as well as in Estonia and Germany, although in the latter two countries, average levels of unmet dental care were low.

Inequalities in self-reported unmet medical care needs are also evident in non-European countries (Figure 6.1.3). Again, foregone care due to cost is more prevalent among lower income groups. There are large differences in the size of these inequalities across countries, as shown by much lower levels in the United Kingdom than in the United States. In the United States, more than one-third of the adult population with below-average incomes reported having some type of unmet care need due to cost in 2010 (Commonwealth Fund, 2010). Adults with below-average incomes who have health insurance report significantly less access problems than do their uninsured counterparts (Blendon *et al.*, 2002). The proportion of the population reporting cost-related access problems declined markedly between 2007 and 2010 in New Zealand, and to a lesser extent in the United States and Australia (Commonwealth Fund, 2008, 2010).

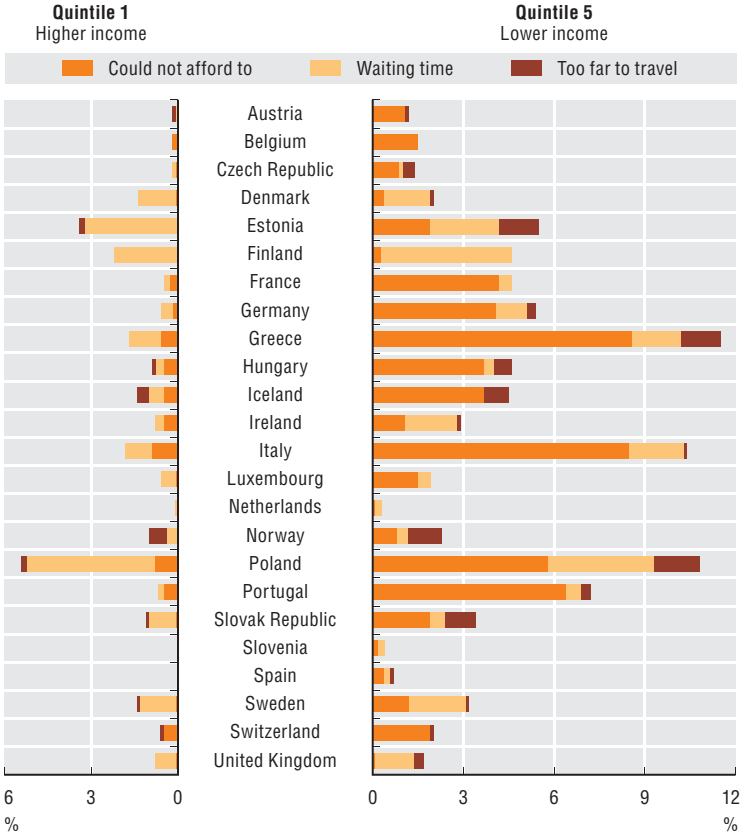
Definition and comparability

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) and the international health policy surveys conducted by the Commonwealth Fund. No single survey or study on unmet care needs has been conducted across all OECD countries.

To determine unmet medical care, individuals are typically asked whether there was a time in the previous 12 months when they felt they needed health care services but did not receive them, followed by a question as to why the need for care was unmet. Common reasons include that care was too expensive, the waiting time was too long, or the travelling distance to receive care was too far.

Information on both unmet care and socio-economic status are derived from the same survey, although question and answer categories, age groups surveyed and measures to grade socio-economic status can vary. Cultural factors and policy debates may also affect attitudes to unmet care. Caution is needed in comparing the magnitude of inequalities across countries.

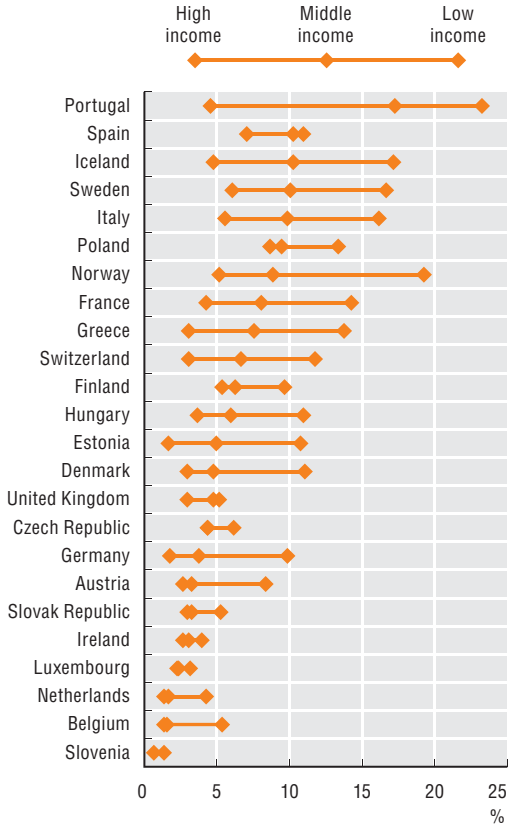
6.1.1 Unmet need for a medical examination, selected reasons by income quintile, European countries, 2009



Source: EU-SILC.

StatLink http://dx.doi.org/10.1787/888932525628

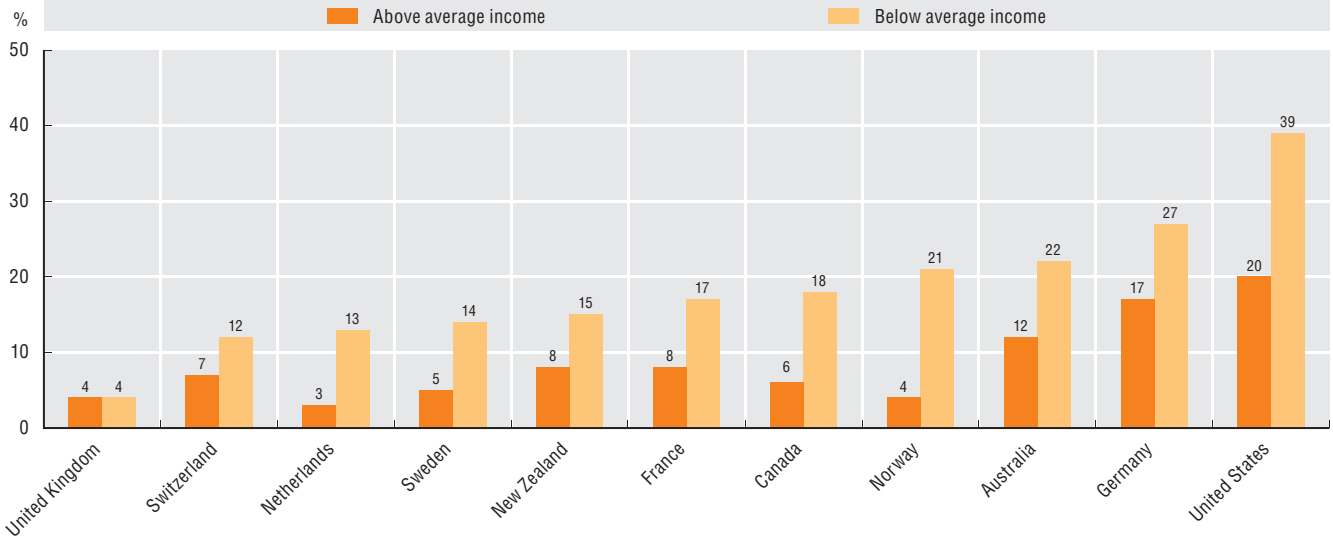
6.1.2 Unmet need for a dental examination, by income quintile, European countries, 2009



Source: EU-SILC.

StatLink http://dx.doi.org/10.1787/888932525647

6.1.3 Unmet care need[1] due to costs in eleven OECD countries, by income group, 2010



1. Either did not visit doctor with medical problem, did not get recommended care or did not fill/skipped prescription.

Source: Commonwealth Fund (2010).

StatLink http://dx.doi.org/10.1787/888932525666

6.2. Coverage for health care

Health care coverage promotes access to medical goods and services, as well as providing financial security against unexpected or serious illness (OECD, 2004a). However, total health insurance coverage – both public and private – is an imperfect indicator of accessibility, since the range of services covered and the degree of cost-sharing applied to those services can vary across countries.

Most OECD countries have achieved near-universal coverage of health-care costs for a core set of services, which usually include consultations with doctors and specialists, tests and examinations, and surgical and therapeutic procedures (Figure 6.2.1). Generally, services such as dental care and supply of pharmaceutical drugs are partially covered, although there are a number of countries where these services must be purchased separately (see Annex Table A.5).

Four OECD countries do not have universal health coverage. Chile has a dual health care system with coverage through the public National Health Insurance Fund, or through private health insurance companies and other not-for-profit agencies. A proportion of the population, however, remains without specific coverage. In Mexico, the "Seguro Popular" voluntary health insurance scheme was introduced in 2004 to provide coverage for the poor and uninsured, and has grown rapidly so that by 2009 around three quarters of the population were covered. Public coverage in Turkey has increased rapidly in recent years, reaching over 80% in 2009.

In the United States, coverage is provided mainly through private health insurance, and 55% of the total population had this for their basic coverage in 2009. Publicly-financed coverage insured 26% of the total population (the elderly, people with low income or with disabilities), leaving 19% of the population – mostly under 65 years of age – without health coverage. Most uninsured persons cite the increasing cost of premiums as the reason for their lack of coverage (NCHS, 2009). Employers, particularly smaller ones, are also less likely to offer coverage to workers (OECD, 2008b). The recent rise in the proportion of uninsured can be attributed to the effects of the recession and the loss of employment, accompanied by the loss of health care coverage (KFF, 2010).The problem of persistent uninsurance is a major barrier to receiving health care, and more broadly, to reducing health inequalities among population groups (AHRQ, 2011b; HHS Office of Health Reform, 2009). The 2010 Patient Protection and Affordable Care Act seeks to increase insurance coverage in the United States.

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). Among the 34 OECD countries, ten report private coverage for over half of the population in 2009 (Figure 6.2.2).

Private health insurance offers 94% of the French population *complementary* insurance to cover cost-sharing in the social security system. The Netherlands has the largest *supplementary* market (90% of the population), followed by Israel (81%), whereby private insurance pays for prescription drugs 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 (51%) and Australia (45%). The population covered by private health insurance is positively correlated to the share of total health spending accounted for by private health insurance (Figure 6.2.3).

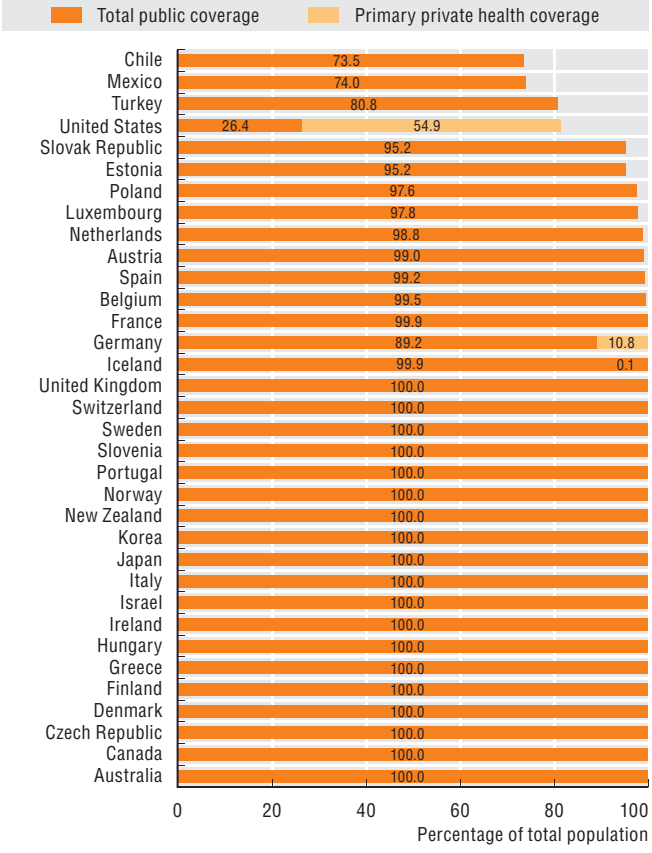
The importance of private health insurance is not linked to a countries' economic development. Other factors are more likely to explain market development, including gaps in access to publicly financed services, the way private providers are financed, government interventions directed at private health insurance markets, and historical development (OECD, 2004b).

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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

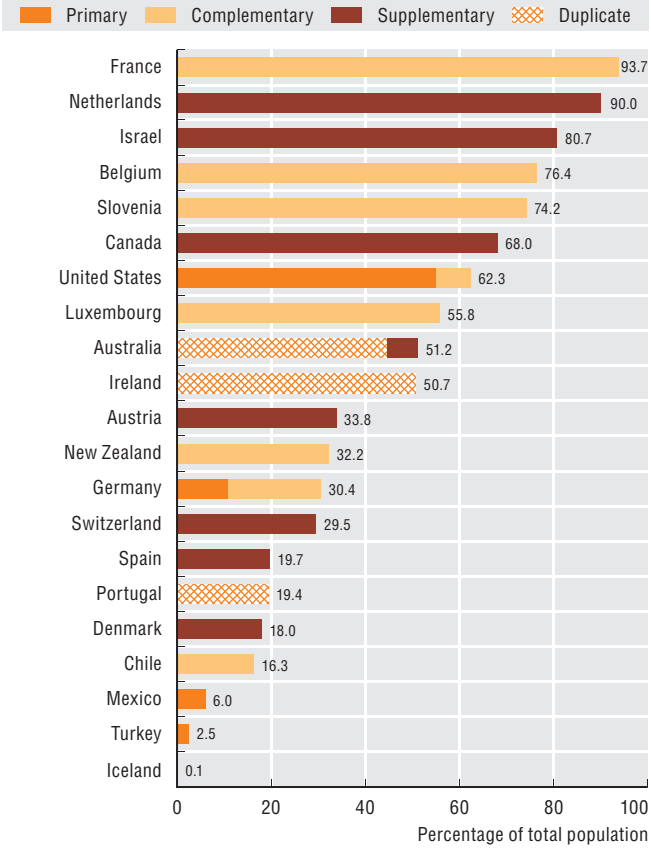
6.2.1 Health insurance coverage for a core set of services, 2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525685

6.2.2 Private health insurance coverage, by type, 2009

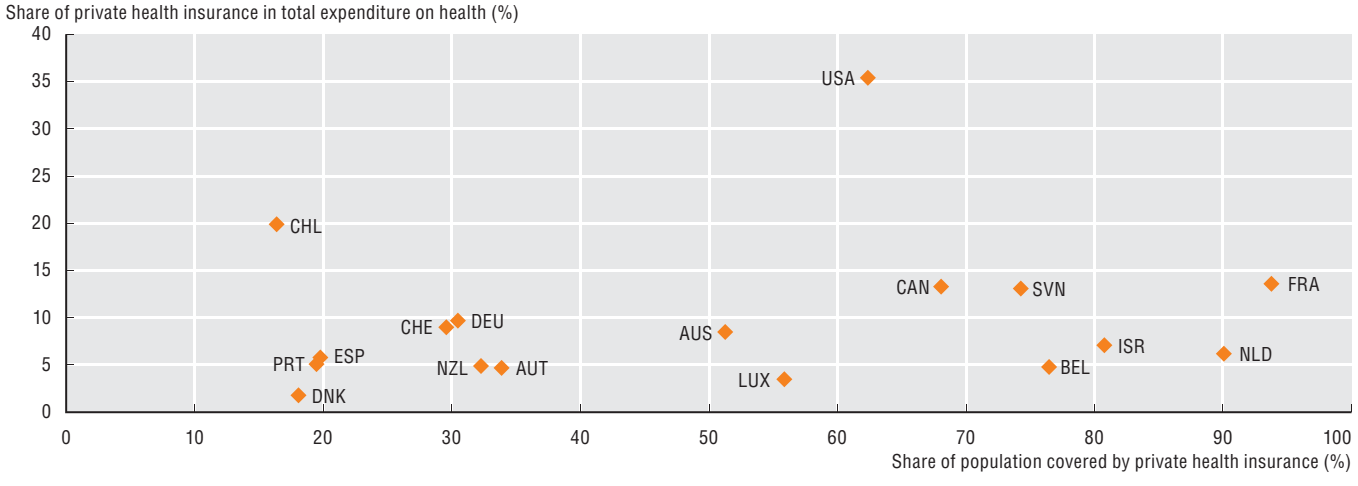


Note: Private health insurance can fulfil several roles. For instance, it can be both duplicate and supplementary in Australia and Israel; and both complementary and supplementary in Denmark, Ireland and New Zealand.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525704

6.2.3 Private health insurance, population covered and share in total health expenditure, 2009



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525723

6.3. Burden of out-of-pocket health expenditure

Financial protection through public or private health insurance substantially reduces the amount that people pay directly for medical care, yet in some countries the burden of out-of-pocket spending can still create barriers to health care access and use. Households that have difficulties paying medical bills may delay or forgo needed health care (Hoffman *et al.*, 2005; May and Cunningham, in Banthin *et al.*, 2008). On average across OECD countries, 19% of health spending is paid directly by patients (see Indicator 7.5 "Financing of health care").

In contrast to publicly-funded care, out-of-pocket payments rely on the ability to pay. If the financing of health care becomes more dependent on out-of-pocket payments, its burden is, in theory, shifted towards those who use services more, and possibly from high to low income earners, where health care needs are higher. In practice, many countries have exemptions and caps to out-of-pocket payments for lower income groups to protect health care access. Switzerland, for example, has a high proportion of out-of-pocket expenditure, but it has cost-sharing exemptions for large families, social-assistance beneficiaries and others. There is an annual cap on deductibles and co-insurance payments (Paris *et al.*, 2010).

The burden of out-of-pocket health spending can be measured either by its share of total household income or its share of total household consumption. The average share varied considerably across OECD countries in 2010, representing less than 2% of total household consumption in countries such as Turkey, the Netherlands, France and the United Kingdom, but more than 5% in Greece and Switzerland (Figure 6.3.1). The United States, with 3.1% of consumption spent on out-of-pocket health services, is close to the average.

Persons who are older or with lower incomes tend to have greater levels of illness and are more likely to need health care, so it is important to determine whether the distribution of out-of-pocket spending varies across the population. A cross-national survey conducted in eleven OECD countries found that high out-of-pocket spending (defined as more than USD 1 000 per year) was uncommon for both low- and high-income earners in the United Kingdom, Sweden and France (Schoen *et al.*, 2010). In other countries, adults with above-average incomes were more likely to report high out-of-pocket spending. Even so, in Switzerland and the United States, the proportion of poorer adults with high out-of-pocket expenditure was high, at 20% and 29% respectively (Figure 6.3.2).

The US Medical Expenditure Panel Survey found that 28% of Americans living in a poor family (defined as a family income below the Federal poverty level) were spending more than 10% of their after-tax family income for health services and health insurance premiums in 2004, compared with 10% of Americans in a high income family (Banthin *et al.*, 2008). Among older persons in the United States, low-income individuals pay the highest out-of-pocket payments in relation to their income, with prescription drugs comprising the biggest share (Corrieri *et al.*, 2010).

Households in the lowest income category in the Netherlands spent 6.5% of their disposable income on out-of-pocket payments in 2007, whereas in the highest income category the proportion was 1.5% (Westert *et al.*, 2010). In Turkey, results from the 2006 Household Budget Survey indicate that out-of-pocket spending was reasonably progressive, in that poorer families spent 3.4% of their household consumption on health, whereas in richer households this was 4.2% (OECD and World Bank, 2008).

A small proportion of households in OECD countries face very high or "catastrophic" health expenditure each year, perhaps as a result of severe illness or major injury (WHO, 2010c). Countries that have a greater reliance on out-of-pocket health care expenditure tend also to have a higher proportion of households with catastrophic expenditures. In some countries, the imposition of user fees may mean that lower income households forgo health care altogether, and thus not use enough services to incur catastrophic expenditures.

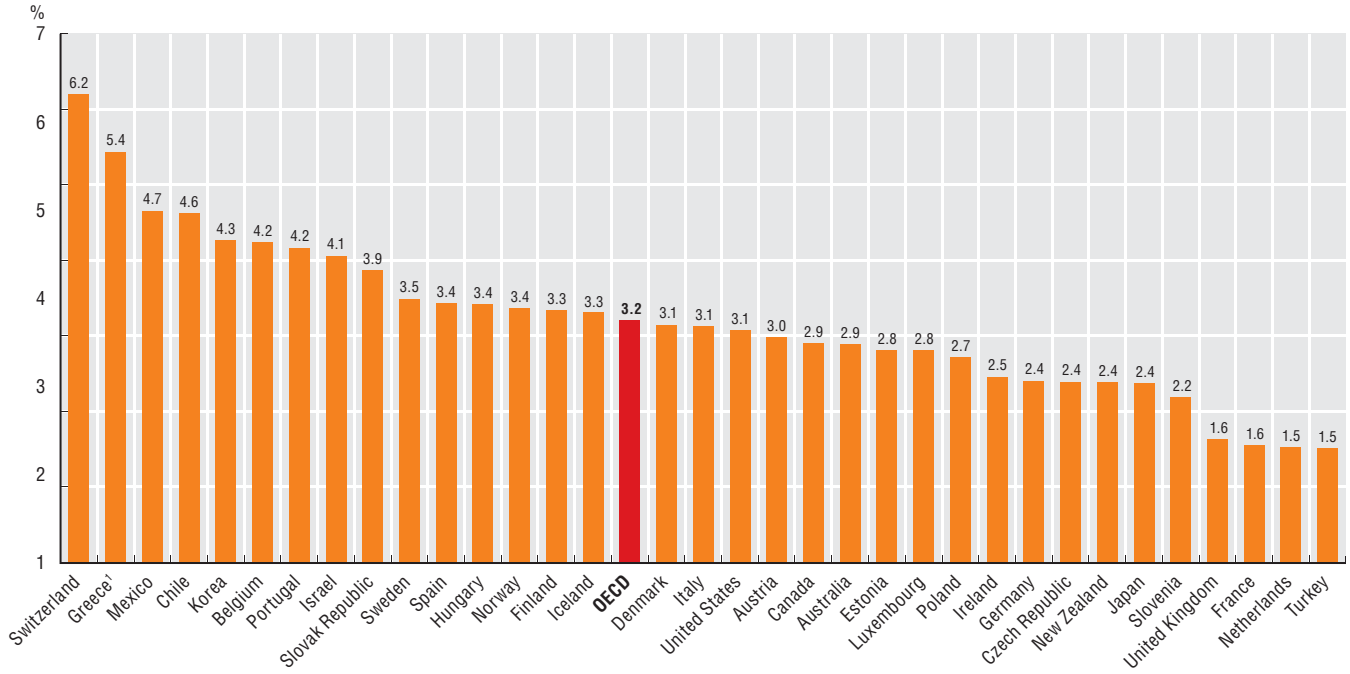
Definition and comparability

Out-of-pocket payments are expenditures borne directly by a patient where insurance does not cover the full cost of the health good or service. They include cost-sharing, self-medication and other expenditure paid directly by private households. In some countries, estimations of informal payments to health care providers are also included.

Information on of out-of-pocket expenditure is collected through household expenditure surveys in a number of OECD countries.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

6.3.1 Out-of-pocket expenditure as a share of final household consumption, 2009 (or nearest year)

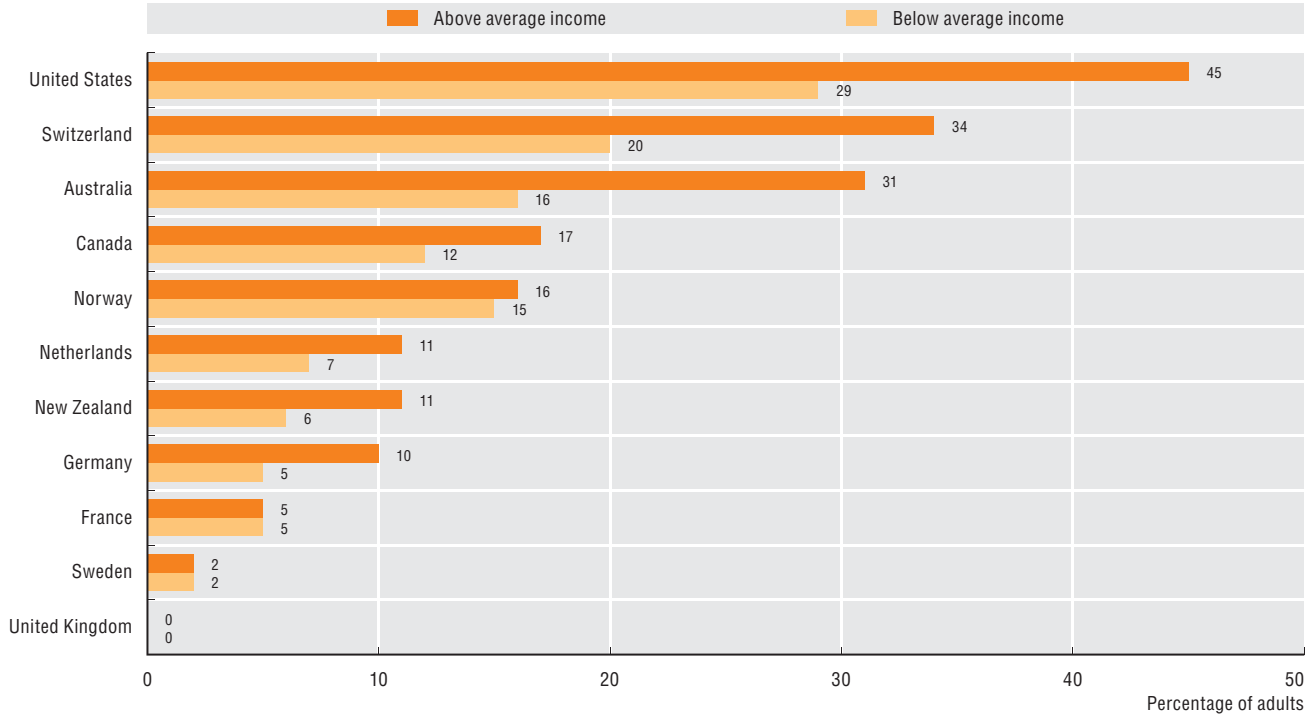


1. Private sector total.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932525742

6.3.2 Out-of-pocket medical costs of USD 1 000 or more in the past year by income level, eleven OECD countries, 2010



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

StatLink http://dx.doi.org/10.1787/888932525761

6.4. Geographic distribution of doctors

Access to medical care requires an adequate number and proper distribution of physicians. Shortages of physicians in a geographic region can lead to increased travel times for patients and higher caseloads for doctors. The maldistribution of physicians is a challenge in a number of OECD countries, especially in territories with remote and sparsely populated areas, with long travelling times to the nearest urban region.

Measuring disparities in the "density" of physicians among regions within the same country gives some indication of the accessibility of doctor services. Regions, however, may have high physician density, but persons living in geographically remote areas may still face long travel times to receive medical care. Not only should the density of physicians match the regions' population, but the services that physicians offer should also match need, whether these are for GPs or specialists. Medical needs may be higher in remote areas with an older than average population, for example.

OECD countries display very different levels in the number of practising physicians per 1 000 population, ranging from lows of less than two in Chile, Turkey and Korea, to highs of four and more in Norway, Austria and Greece (see Indicator 3.2 "Medical doctors").

In many countries, there are a greater number of physicians per capita in capital cities (Figure 6.4.1). In the Czech Republic for example, Prague has a density of physicians almost twice the country average. Austria, Belgium, Greece, Portugal, the Slovak Republic and the United States also have physicians concentrated in capital cities. There are also disparities in specialists, with a greater concentration in capital cities in Mexico, the Slovak Republic and Turkey (OECD, 2009b). In Japan, an urban-biased distribution is reported for a variety of specialists (Matsumoto, 2010).

The density of physicians is greater in regions with a high urban population, due to the concentration of services such as surgery and specialised practitioners (Figure 6.4.2). In Canada, just under 16% of "family physicians" (mostly general practitioners) and only 2% of specialists were located in rural areas and small towns in 2006, whereas 24% of the population resided in these areas (Dumont *et al.*, 2008). Similarly, in the United States, 17% of the population lived in non-metropolitan areas in 2004, but only 9% of practising patient care physicians were located in these areas, and almost 50% of US counties had no obstetricians or gynaecologists providing direct patient care (NCHS, 2007). In France, 22% of general practitioners and 4% of specialists practised in towns of up to 10 000 population in 2010, whereas 36% of the population resided in these areas (DREES, 2010).

A number of factors affect the distribution of physicians. These include the population size and economic development of a region (which are related to market size and income potential), the regions' professional climate (the possibility of interaction with colleagues, and access to hospitals and other medical facilities) and the extent of social amenities (Huber *et al.*, 2008).

Experience shows that a mix of policies are needed to address maldistribution issues (Simoens and Hurst, 2006; Dolea *et al.*, 2010). In Canada, foreign-trained doctors comprised an average of 30% of the labour force in rural and remote areas in 2006. Telehealth and nurse practitioners also assist in providing primary care. Incentives have been developed to train health professionals with rural background and exposure (Dumont *et al.*, 2008). In Turkey, new health staff have been assigned to areas with low physician density, although the challenge remains to match staff with areas of greatest need (OECD and World Bank, 2008). In July 2010, WHO issued a set of Global Policy Recommendations on different retention strategies for health workers in remote and rural areas (WHO, 2010).

Definition and comparability

For more detail on practicing physicians, see Indicator 3.2 "Medical doctors". The geographic distribution of physicians can be examined by calculating rates of practising physicians per regional population.

Since countries use a variety of geographical classifications, the OECD has classified regions into two territorial Levels. The higher level (Territorial Level 2) consists of 362 large regions, which correspond closely to national administrative regions (OECD, 2011b). However, these regions may contain a mixture of urban, intermediate and rural populations. Further sub-regional analysis may be necessary to obtain a more complete picture of geographic distribution of physicians. A number of countries have developed schemes to classify populations into urban-rural categories, although these are not standard, making cross-national comparisons difficult.

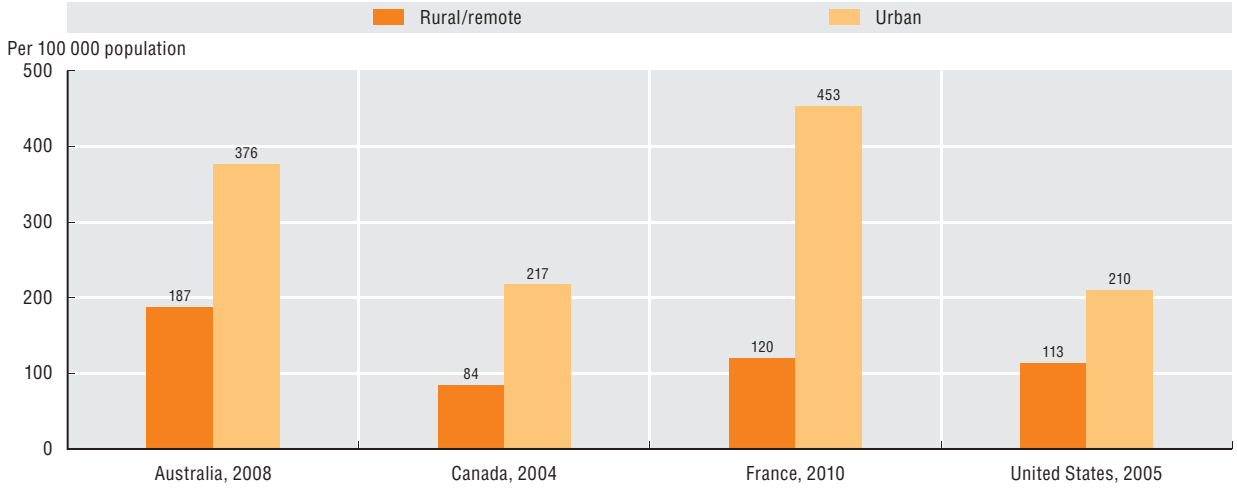
Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

6.4.1 Physician density, by territorial level 2 regions, 2008 (or nearest year)

Source: OECD (2011b).

StatLink http://dx.doi.org/10.1787/888932525780

6.4.2 Physician density in rural and urban regions, four OECD countries, latest year available



Note: Classifications of rural and urban regions differ between countries.

Source: AIHW (2010b); CIHI (2005); DREES (2010); Fordyce *et al.* (2007).

StatLink http://dx.doi.org/10.1787/888932525799

6.5. Inequalities in doctor consultations

Measuring rates of health care utilisation, such as doctor consultations, is one way of identifying whether there are access problems for certain populations. Difficulties in consulting doctors because of excess cost, long waiting periods or travelling time, and lack of knowledge or incentive may lead to lower utilisation, and in turn to poorer health status and increased health inequalities.

The average number of doctor consultations per capita varies greatly across OECD countries (see Indicator 4.1 "Consultations with doctors"). But there are also significant differences among socio-economic groups within countries, as determined by income, education, or occupation.

Ongoing OECD work is updating an earlier study by van Doorslaer *et al.* (2004) on income-related inequality in visits to doctors in a number of OECD countries. The figures show the horizontal inequity index – a measure of inequality in health care use – for the probability of a doctor, GP and specialist visit. The probability is unequal if the horizontal inequity index is significantly different from zero. It 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 more severe among lower socio-economic groups.

Doctor visits were more likely among higher income persons in 12 of 15 countries (Figure 6.5.1), however most countries have low levels of inequality. Only in the United States was a higher level of inequality apparent. In three OECD countries – the United Kingdom, the Czech Republic and Slovenia – given the same need, high income people were as likely to see a doctor as those with low income. In Korea, a similar study found income-related equality for western doctor visits (Lu *et al.*, 2007).

Regarding the frequency of visits, six countries out of 14 display pro-rich inequalities (Canada, France, Finland, Spain, the United States, and Poland). In the other eight countries, low income people saw a doctor as frequently as high income people (Belgium, Slovenia, New Zealand, the Czech Republic, Hungary, Germany, the Slovak Republic, and Estonia).

There is a difference between GP and specialist visits. The probability of a GP visit was equally distributed in most countries (Figure 6.5.2). 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.

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 6.5.3), and also more frequently. In Finland, the relationship is stronger for visits to private specialists because of the size of patient co-payments, a high-income distribution of workplace services which facilitate access to specialist care, and the large private ambulatory care sector (NOMESCO, 2004; OECD, 2005b). It Italy, regional variations in health care access explain most of the pro-rich inequalities in specialist visits (Masseria and Giannoni, 2010).

Consistent with these findings, an earlier study found that people with higher education levels tend to use specialist care more, and the same was true for GP use in several countries (France, Portugal and Hungary) (Or *et al.*, 2008). The study suggests that, beyond the direct cost of care, other health system characteristics are important in reducing social inequalities in health care utilisation, such as the role given to the GP and the organisation of primary care. Social inequalities in specialist use are less in countries with a National Health System and where GPs act as gatekeepers. Countries with established primary care networks may place greater emphasis on deprived populations, and gatekeeping often provides simpler access and better guidance for people in lower socio-economic positions (Or *et al.*, 2008).

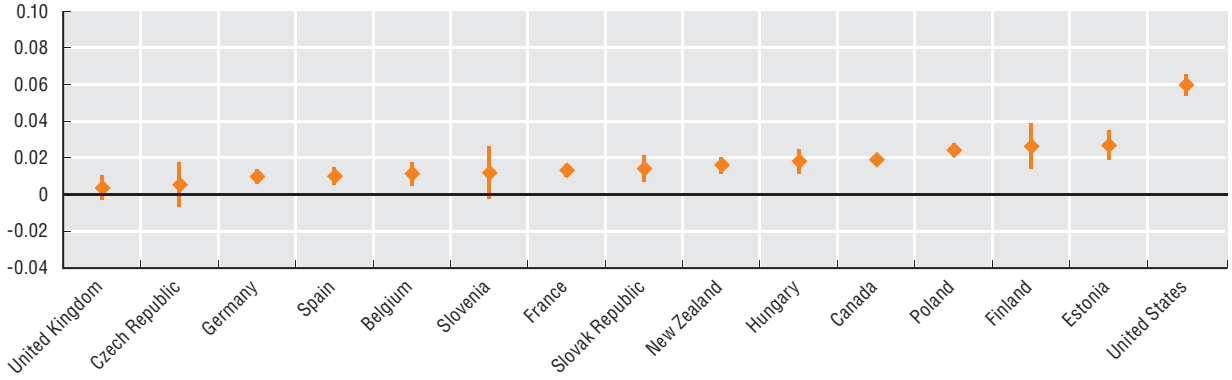
Definition and comparability

Consultations with doctors refer to the probability and frequency of visits with physicians, including both generalists and specialists (except in the United States where this distinction is not possible).

OECD estimates come from health interview or household surveys conducted around 2009, and rely on self-report. 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. Surveyed groups may vary in age range, and the measures used to grade income can also vary. Caution is therefore needed when interpreting inequalities in health care utilisation across countries.

6.5.1 Horizontal inequity indices for probability of a doctor visit (with 95% confidence interval), 15 OECD countries, 2009 (or nearest year)



Source: OECD estimates (2011).

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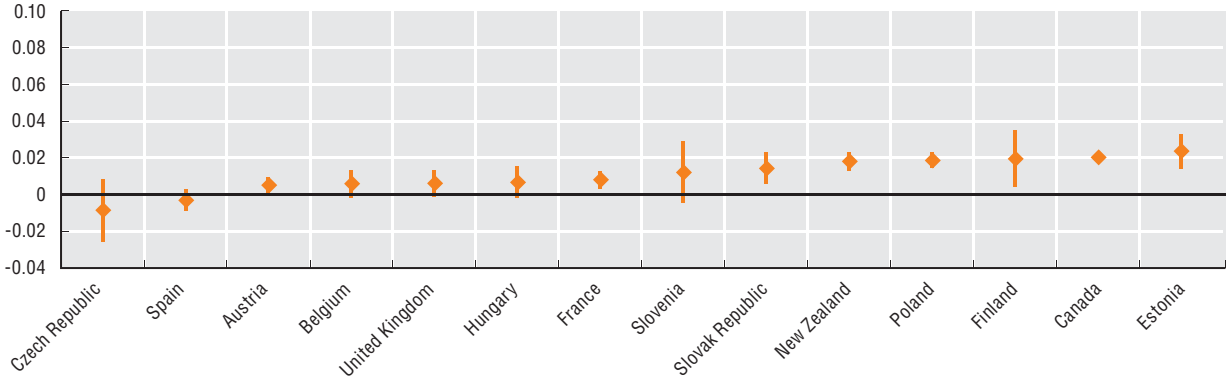
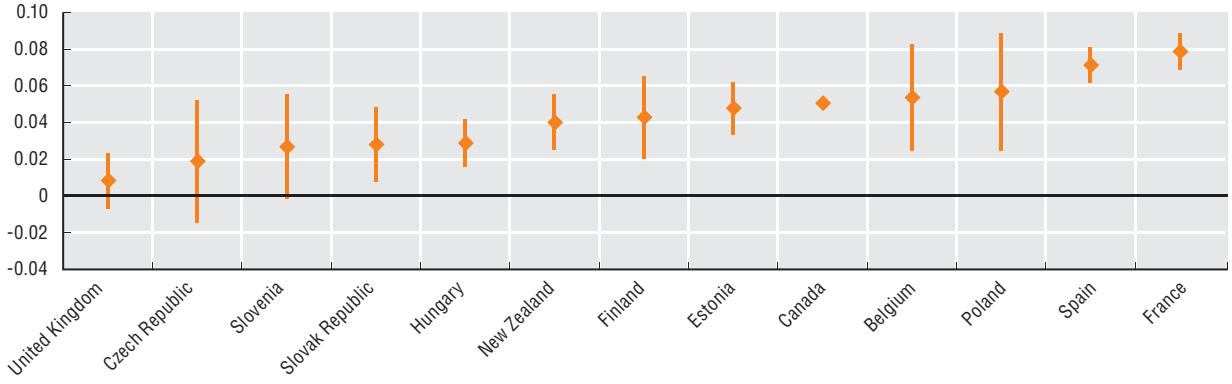
6.5.2 Horizontal inequity indices for probability of a GP visit (with 95% confidence interval), 14 OECD countries, 2009 (or nearest year)



Source: OECD estimates (2011).

StatLink http://dx.doi.org/10.1787/888932525837

6.5.3 Horizontal inequity indices for probability of a specialist visit (with 95% confidence interval), 13 OECD countries, 2009 (or nearest year)



Note: The probability of a doctor, GP or specialist visit is inequitable if the horizontal inequity index is significantly different from zero. It favours low income groups when it is below zero, and high income groups when it is above zero. The index is adjusted for need.

Source: OECD estimates (2011).

StatLink http://dx.doi.org/10.1787/888932525856

6.6. Inequalities in dentist consultations

Dental caries, periodontal (gum) disease and tooth loss are common problems in OECD countries. Despite improvements, problems in access persist, most commonly among disadvantaged and low income groups. In the United States, over 40% of low income persons aged 20-64 years had untreated dental caries in 2005-08, compared with only 16% of high income persons (NCHS, 2011). In Finland, one-quarter of adults with lower education had six or more missing teeth, while less than 10% of those with higher education had the same amount of tooth loss (Kaikkonen, 2007).

Strategies to improve access to dental care for disadvantaged or underserviced populations include reducing financial and non-financial barriers, and promoting an adequate dental workforce to respond to demand.

Most public health authorities recommend an annual visit to a dentist. The average number of per capita consultations varied widely in 2009, from over three in Japan and over two in Belgium, the Netherlands and Israel, to 0.1 in Mexico and 0.3 in Turkey, with an OECD average of 1.3 (Figure 6.6.1). Some of this variation can be explained by the differing availability of dentists. In general, as the number of dentists increases, so does the number of consultations per capita (OECD, 2009b).

Recent OECD findings show that high income persons were more likely to visit a dentist within the last 12 months (Figure 6.6.2). This is despite differences in public or private dental coverage and the amount of reimbursement. Inequalities are larger in countries with a lower probability of a dental visit such as Hungary, Poland, the United States and Spain. Denmark and France have different recall periods and this affects the average probability of a dental visit, but not the level of inequality. Both countries are among the most equitable for the probability of a dental visit.

Inequalities in types of care, whether curative or preventive, are also apparent. A recent study in Canada shows that access to preventive care is more common among higher income persons (Grignon *et al.*, 2010). There are similar income-related inequalities in dental service utilisation among Europeans aged 50 years and over (Listl, 2011), mostly due to inequalities in preventive dental visits.

In the United States, more recent data confirms the wide differences between income groups in the probability of a dental visit. Less than half of poor and near-poor persons visited a dentist in 2009 compared with close to 70% of middle and high income persons. This gap has remained largely unchanged over the past decade (Figure 6.6.3). As in many other countries, access to dental care in the United States is generally more difficult than for medical care, since a smaller proportion of persons have dental insurance. More adults report that they did not get needed dental care due to costs than medical care (see Indicator 6.1, "Unmet health care needs").

Oral health care is mostly provided by private dental practitioners. Treatment is costly, averaging 5% of total health expenditure (and 16% of private health expenditure) across OECD countries in 2009. In countries such as Australia, Canada and New Zealand, adult dental care is generally not part of the basic package of public care insurance, although some care is provided for people with disabilities, those with low income and other disadvantaged groups. In other countries, prevention and treatment are covered, but a share of costs is borne by patients, and this may create access problems for low-income groups (Figure 6.6.4). Some countries, such as the Nordic countries and the United Kingdom, provide public dental care, particularly to children and disadvantaged groups.

Definition and comparability

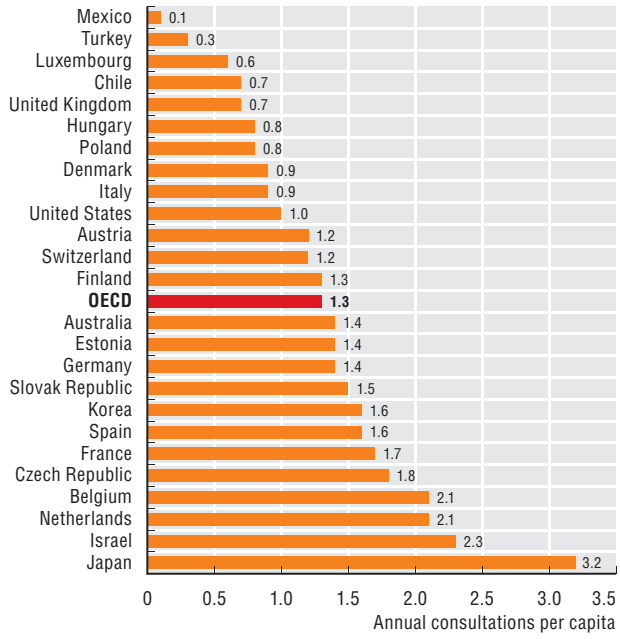
Consultations with dentists refer to the probability and the number of contacts with dentists. Estimates usually come from health interview or household surveys, and rely on self-report, although some countries provide administrative data. In Germany, the Social Health Insurance Scheme only counts the first reimbursement during a three-month period, and so under-reporting may occur.

Inequalities in dental consultations are here assessed in terms of household income.

Differing survey questions and response categories may affect valid cross-national comparisons. Surveyed groups may vary in age range, and the measures used to grade income level can also vary. Most countries refer to dental consultations during the past 12 months, except for France (past 24 months) and Denmark (past three months). The difference in recall periods is likely to have an impact on the average probability of dentist visits, but not on the level of inequality. Caution is herefore needed when interpreting inequalities across countries.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

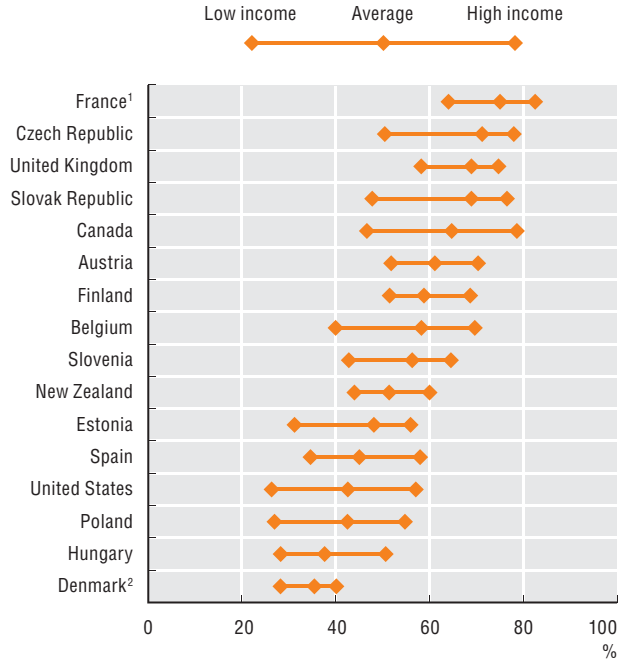
6.6.1 Average number of dentist consultations per capita, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525875

6.6.2 Probability of a dental visit in the past 12 months, by income group, 2009 (or nearest year)

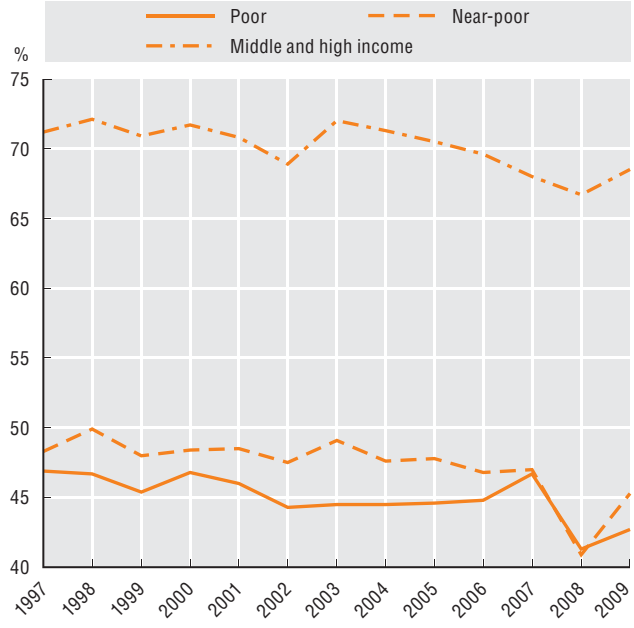


1. Visits in past two years.
2. Visits in past three months.

Source: OECD estimates (2011).

StatLink http://dx.doi.org/10.1787/888932525894

6.6.3 Proportion of adults visiting a dentist in the past year, by income group, United States, 1997-2009



Source: NCHS (2011).

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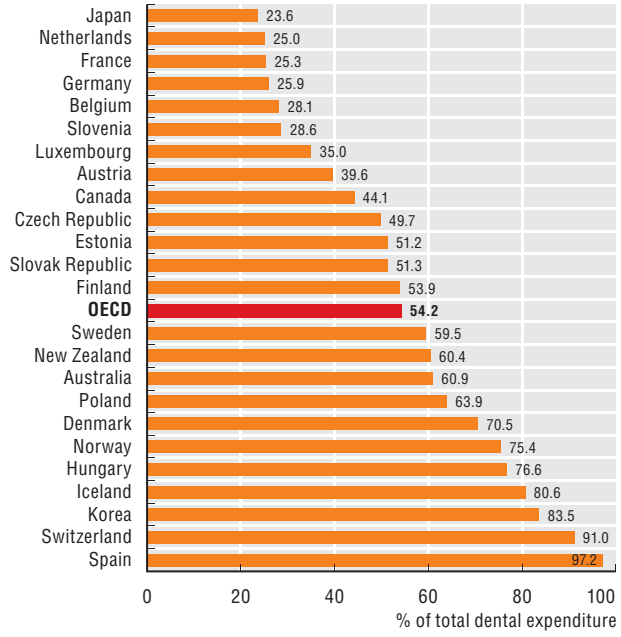
6.6.4 Out-of-pocket dental expenditure, 2009 (or nearest year)



Source: OECD Health Data 2011.

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6.7. Inequalities in cancer screening

Cancer is the second most common cause of death in OECD countries, responsible for 28% of all deaths in 2009. Among women, breast cancer is the most common form, accounting for 30% of new cases each year and 15% of cancer deaths in 2009. Cervical cancer adds an additional 3% of new cases, and 2% of female cancer deaths (see Indicator 1.4, "Mortality from cancer").

The early detection of breast and cervical cancers through screening programmes has contributed to increased survival rates, and many countries have opted to make screening widely available. In most countries, more than half of women in the target age groups have had a recent mammogram, and a pelvic exam or Pap smear (see Indicators 5.8 and 5.9).

Screening rates vary widely among women in different socio-economic groups in OECD countries (Figures 6.7.1 and 6.7.2). Even in those countries where the practice is common, women in lowest income groups are generally less likely to undergo screening. Income-related inequalities in cervical cancer screening are significant in 15 of the 16 countries studied. However, pro-rich inequalities in breast cancer screening are significant in fewer countries (Belgium, Canada, Estonia, France, New Zealand, Poland and the United States).

In the United States, low-income women, women who are uninsured or receiving Medicaid (health insurance coverage for the poor, disabled or impoverished elderly) or women with lower educational levels report much lower use of mammography and Pap smears (NCHS, 2011). There is additional evidence in European countries for significant social inequalities in utilisation of early detection and prevention health care services (von Wagner *et al.*, 2011). In particular, women with higher level of assets are more likely to have mammograms (Sirven and Or, 2010).

In Mexico, cervical cancer detection programmes have been in place for some time, but problems with access and coverage remain, especially among disadvantaged groups, so that almost half of women aged 50 years and over have not had a Pap test in the last two years (Couture *et al.*, 2008). In most OECD countries, however, income should not be a barrier to accessing screening mammography or Pap smears, since the services are provided free of charge, or at the cost of a doctor consultation.

Participation rates also vary by geographic regions (Figure 6.7.3). Some areas, such as the Northern Territory (Australia), and London (the United Kingdom), exhibit significantly lower rates than do other regions within the country. The reasons for this are varied. In geographically isolated regions such as the Northern Territory, travelling distance, the availability of screening services and access barriers for Indigenous women play a part. In inner urban areas of London, low levels of awareness of screening programmes, symptoms and risks are a concern among women who are poor, or from minority ethnic groups.

A number of socio-economic characteristics – such as income, ethnicity, younger age, higher level of education, employment status, residential area, marital status, having health insurance, good health status, having a usual source of care and use of other preventative services – are all important predictors of participation in screening.

Since a wide range of screening practices and different access barriers exist across OECD countries, no single strategy will meet all needs in promoting greater and equal coverage (Gakidou *et al.*, 2008). In countries with sufficient health system capacity, increased screening can be encouraged by ensuring services are free, and are available where needed. Policies and interventions may need to be better targeted in order to overcome inequalities. As a complementary tool, the promise of new cancer preventing vaccines also has important implications for resource-poor settings where maintaining screening programmes is challenging.

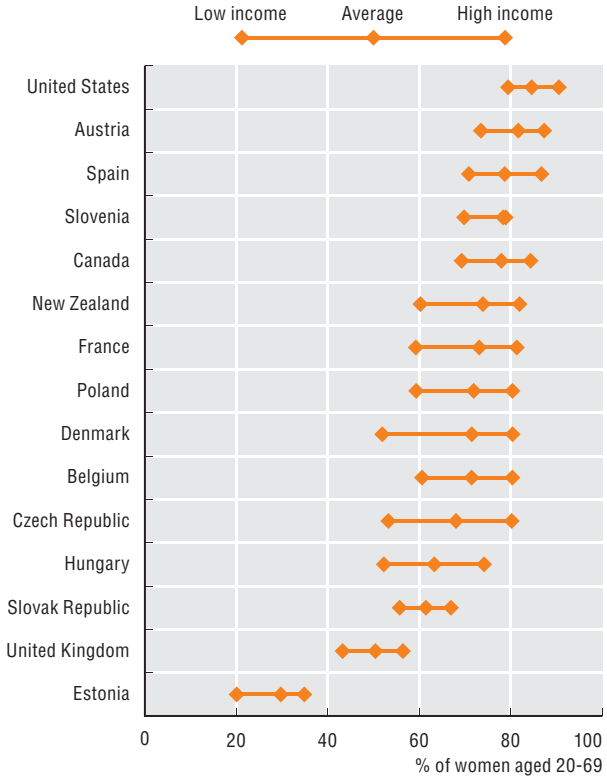
Definition and comparability

Breast and cervical screening participation rates measure the proportion of women of a given age who have variously received a recent mammogram, breast exam, pap smear or pelvic exam. Information is generally derived from health surveys, or from screening programme administrative data.

Rates by income groups were derived from health surveys. For cervical, women aged 20-69 years were asked whether they had been screened in the three years prior to the survey, and for breast, women aged 50-69 years in the past two years. The exception was Denmark (for breast only), where screening was reported for the past 12 months. Screening estimates based on self-reported health surveys should be used cautiously, since respondents tend to overestimate desirable behaviours.

The data for geographic regions include women in target age groups who had participated in national screening programmes. Target age groups and screening periodicity may differ across countries.

6.7.1 Cervical cancer screening in past three years, by income level, 2009 (or nearest year)



Note: The data source for some countries may be different to that used for reporting breast and cervical cancer screening in Chapter 5.

Source: OECD estimates (2011).

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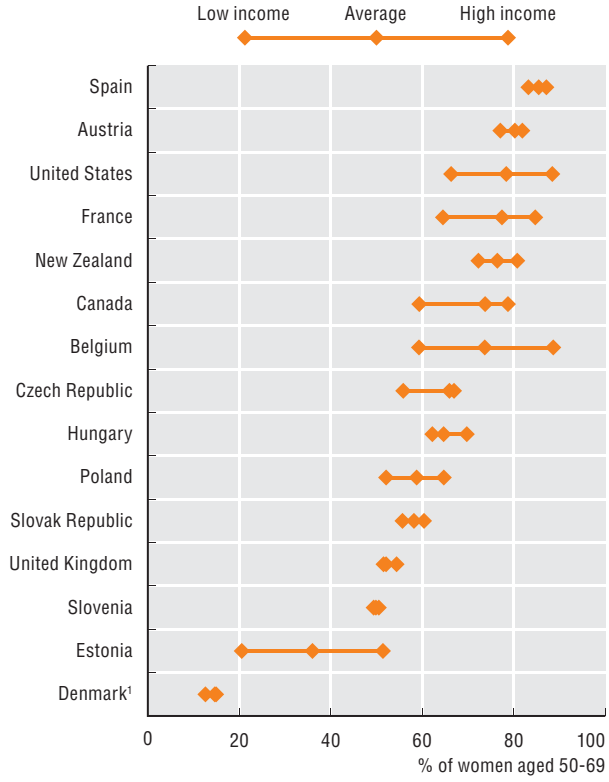
6.7.2 Breast cancer screening in past two years, by income level, 2009 (or nearest year)



Note: The data source for some countries may be different to that used for reporting breast and cervical cancer screening in Chapter 5.

1. Visits in the past 12 months.

Source: OECD estimates (2011).

StatLink http://dx.doi.org/10.1787/888932525970

6.7.3 Participation in breast cancer screening programmes, regions in selected OECD countries

Source: AIHW (2010c); FDCS (2011); IMA-AIM (2010); INVS (2011); NHSBSP (2010); ONS (2010); Page and Taylor (2010); PHAC (2008); CDC (2010b).

StatLink http://dx.doi.org/10.1787/888932525989

6.8. Waiting times

Patients may need to wait for health services for a number of reasons, including a lack of medical equipment or no available hospital beds, short-staffing, or inefficiencies in the organisation of services. Excessive waiting times to see a doctor or for non-emergency surgery can sometimes lead to adverse health effects such as stress, anxiety or pain (Sanmartin, 2003). Dissatisfaction and strained patient-doctor relationships also damage public perceptions of the health system.

Since most countries use their own definitions, collecting comparable data on waiting times is difficult. Multi-country patient surveys are useful, although these rely on self-report, have limited sample size and may not be consistent with administrative data.

These surveys find that waiting times vary substantially. While in some countries they are a major health policy concern, others report no significant waiting times at all. Waiting times to see a primary care physician or nurse in 2010 were low in most of the 11 countries covered by the Commonwealth Fund Survey, and only in Canada, Norway and Sweden did a significant number of patients have to wait for six days or more (Davis *et al.*, 2010).

Waiting times for specialist consultations were also higher in Canada, Norway and Sweden, with 50% or more of survey respondents waiting at least 4 weeks for an appointment (Figure 6.8.1). In Germany, Switzerland and the United States, more timely access was provided. Waiting times for elective surgeries such as cataract removal or hip replacement also show substantial differences. In 2010, a considerable proportion of patients in Canada, Sweden, Norway, the United Kingdom and Australia reported waiting four months or more for elective surgery (Figure 6.8.2) (Davis *et al.*, 2004, 2006, 2010; Schoen *et al.*, 2010).

Waiting times can vary within countries. Though very moderate waiting times for a doctor consultation are reported for Germany, patients in the eastern part of the country report waiting longer (KBV, 2010). There is evidence from several countries, including England, Germany and Austria, that persons in higher socio-economic groups or with private health insurance have shorter waiting times (Laudicella *et al.*, 2010; KBV, 2010; Statistik Austria, 2007). In Canada, women have longer waiting times for specialist consultations than men, possibly because men consult a specialist at a more advanced or acute stage of disease, and have a more urgent need for treatment (Carrière and Sanmartin, 2010).

Initiatives to cut waiting times have been launched in a number of OECD countries. In England, the government set a target in 2000 of a maximum 18 weeks from referral to treatment for elective care, and by 2008, 94% of admitted patients and 98% of non-admitted patients were treated within that time (Department of Health, 2009). These administrative data show more positive results than those reported in surveys (Figure 6.8.2). In New Zealand, waiting times for elective surgery were also addressed as a major health target and have decreased since 2005, while the access and level of services have improved substantially (MoH, 2010).

In Canada, waiting times for a set of priority areas, including hip and knee replacement and cataract surgery, were targeted in 2004 as part of the 10-Year Plan to Strengthen Health Care. The most recent assessment for 2010-11 reported eight out of ten patients receiving priority procedures within benchmarks. For hip replacement, seven out of ten provinces treated 75% of patients within 26 weeks, while the benchmark for cataract surgery (75% of patients treated within 16 weeks) was met in six provinces (CIHI, 2011).

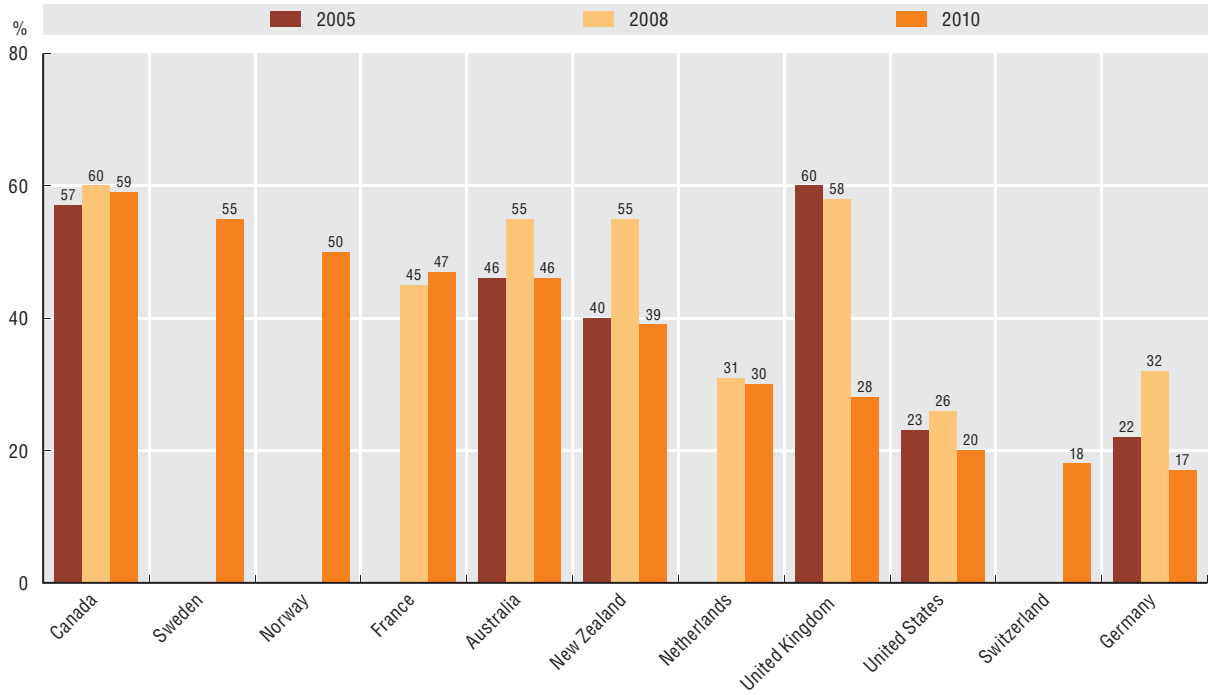
Optimum waiting times are not necessarily zero. It can be cost-effective to maintain short queues of elective patients because the adverse health consequences of short delays are minimal, and there are savings in hospital capacity from allowing queues to form (Siciliani and Hurst, 2003). They may also deter patients who stand to gain only small health benefits from demanding treatment (Laudicella *et al.*, 2010).

Definition and comparability

In the Commonwealth Fund Surveys, waiting times for doctor or nurse consultations refer to the days or weeks the patient had to wait to get an appointment when sick, or in need of medical attention. Waiting times for specialist and elective surgery was the time between the patient being advised that they needed care and the appointment. Only those respondents who had specialist consultations or elective surgery in the last year or two were asked to specify waiting times.

Since there are no universally accepted definitions of waiting times, data derived from different sources may not be fully comparable.

6.8.1 Waiting time of four weeks or more for a specialist appointment



Source: Commonwealth Fund International Health Policy Surveys.

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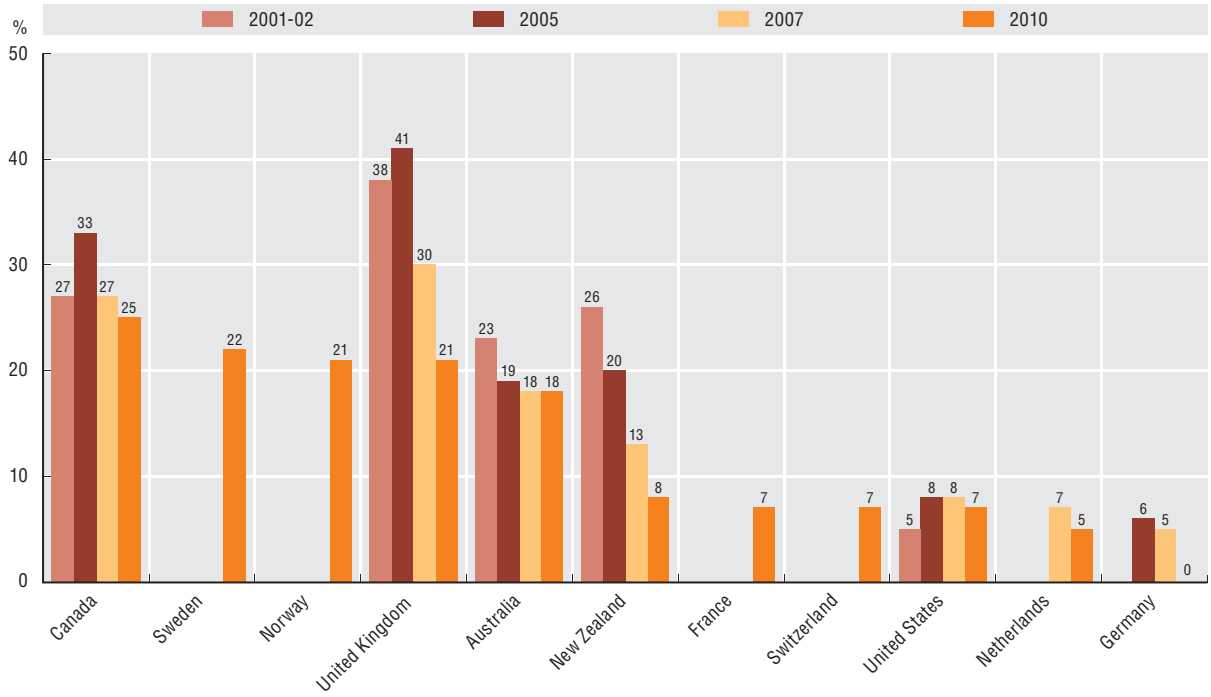
6.8.2 Waiting time of four months or more for elective surgery



Source: Commonwealth Fund International Health Policy Surveys.

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7. HEALTH EXPENDITURE AND FINANCING

7.1. Health expenditure per capita

7.2. Health expenditure in relation to GDP

7.3. Health expenditure by function

7.4. Pharmaceutical expenditure

7.5. Financing of health care

7.6. Trade in health services (medical tourism)

7.1. Health expenditure per capita

OECD countries vary enormously in how much they spend on health and the rate at which health spending grows. This reflects a wide array of market and social factors, as well as countries' diverse financing and organisational structures of their health systems.

The United States continues to outspend all other OECD countries by a wide margin. In 2009, spending on health goods and services per person in the United States rose to USD 7 960 (Figure 7.1.1) – two and a half times the average of all OECD countries. The next highest spending countries, Norway and Switzerland, spend only around two-thirds of the per capita level of the United States, but are still more than 50% above the OECD average. Most of the northern and western European countries, together with Canada and Australia, spend between USD PPP 3 200 and 4 400, between 100% and 130% of the OECD average. Those countries spending below the OECD average include Mexico and Turkey, but also the southern and eastern European members of the OECD together with Korea. Japan also spends less on health than the average in OECD countries, despite its above-average per capita income. By comparison the fast growing economies, China and India, spend less than 10% and 5% of the OECD average on health.

Figure 7.1.1 also shows the breakdown of per capita spending on health into public and private components (see also Indicator 7.5 "Financing of health care"). In general, the ranking according to per capita public expenditure remains comparable to that of total spending. Even if the private sector in the United States continues to play the dominant role in financing, public spending on health per capita is still greater than that in most other OECD countries (with the exception of Norway, Luxembourg and the Netherlands), because overall spending on health is much higher than in other countries. In Switzerland also, a large proportion of health care financing comes from private sources, and its public spending on health is lower than in certain other countries, although overall spending is higher. The opposite is true in Denmark where most health care is mostly financed through public sources.

Per capita health spending over 2000-09 is estimated to have grown, in real terms, by 4% annually on average across the OECD (Figure 7.1.2 and Table A.6). In many countries, the growth rate reached a peak prior to 2004 and slowed in more recent years.

In general, the countries that have experienced the highest growth in health expenditures per capita over this period are those that had relatively low levels at the beginning of the period. Health expenditure growth in the Slovak Republic and Korea, for example, has been more than twice the OECD average since 2000, resulting in a degree of convergence between OECD countries over time.

In countries such as Italy, Switzerland and Germany, health spending per capita has increased at a much slower rate over the period – at an annual average of 2% or less. This reflects, in part, a period of relatively low economic growth over the period as a whole and the effect of deliberate cost-containment policies.

Figure 7.1.3 shows the familiar association between GDP per capita and health expenditure per capita across OECD countries. While there is an overall tendency for countries with higher GDP to spend a greater amount on health, there is wide variation since GDP is not the sole factor influencing health expenditure levels. The association is stronger among countries with low GDP per capita than among OECD countries with a higher GDP per capita. Even for countries with similar levels of GDP per capita there are substantial differences in health expenditure at a given level of GDP. For example, despite Germany and Finland having similar GDP per capita, their health spending per capita differs considerably with Germany spending around 25% more than Finland. The United States spends much more on health than what might be expected based only on its GDP level.

Definition and comparability

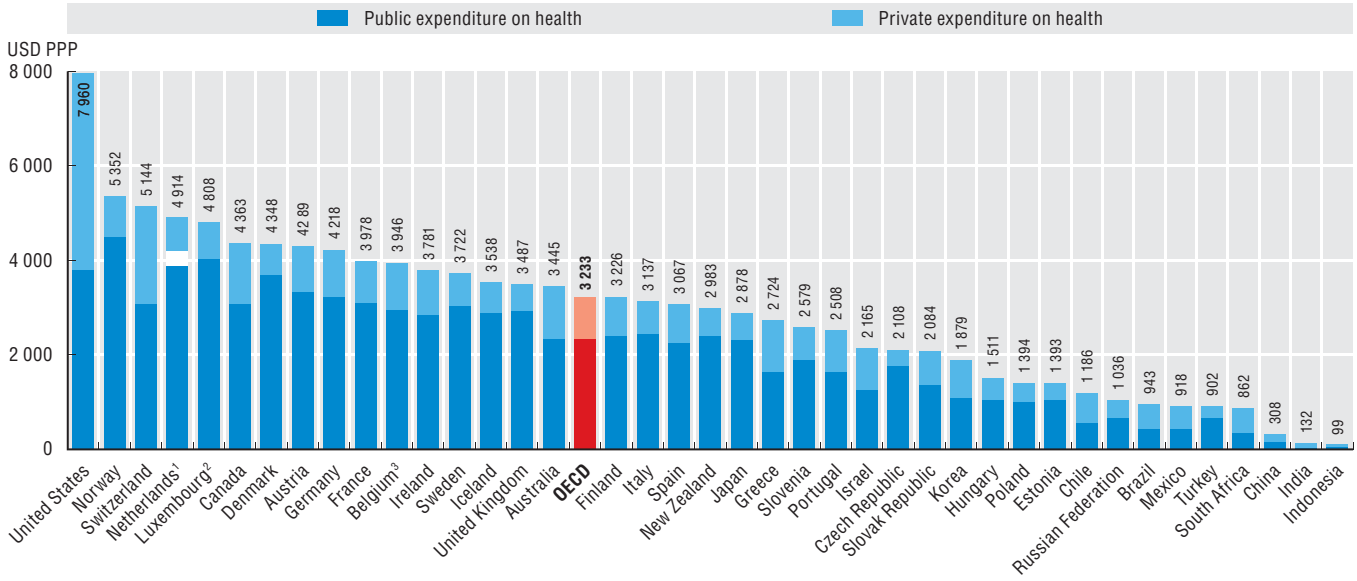
Total expenditure on health measures the final consumption of health goods and services (*i.e.* current health expenditure) plus capital investment in health care infrastructure. This includes spending by both public and private sources on medical services and goods, public health and prevention programmes and administration.

Differing estimation methodologies for long-term care spending, in particular the allocation of spending between health and social care, continue to limit the overall comparability of total health spending. See Indicators 7.3 "Health expenditure by function" and 8.8 "Long-term care expenditure" for further details.

Countries' health expenditures are converted to a common currency (US dollar) and 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 as the most available and reliable conversion rates.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.1.1 Total health expenditure per capita, public and private, 2009 (or nearest year)

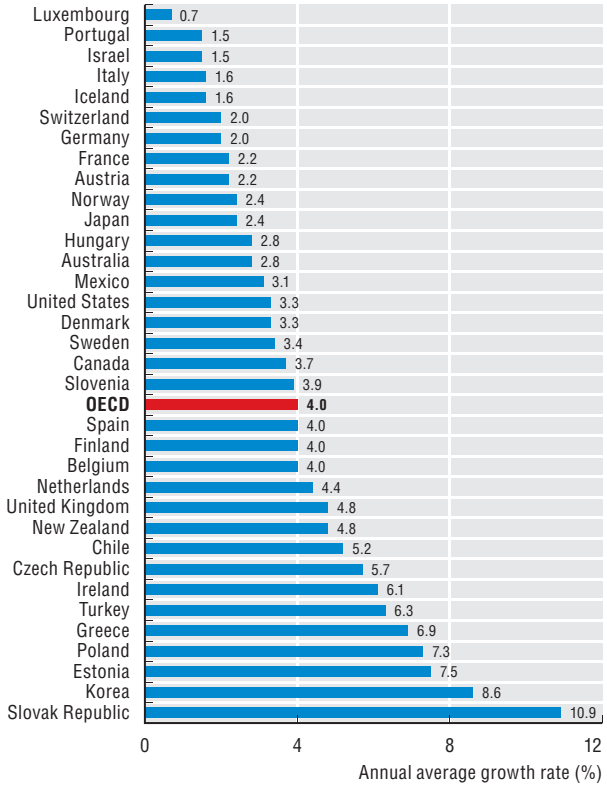


1. In the Netherlands, it is not possible to clearly distinguish the public and private share related to investments.
2. Health expenditure is for the insured population rather than the resident population.
3. Total expenditure excluding investments.

Source: OECD Health Data 2011; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932526046

7.1.2 Annual average growth rate in health expenditure per capita in real terms, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

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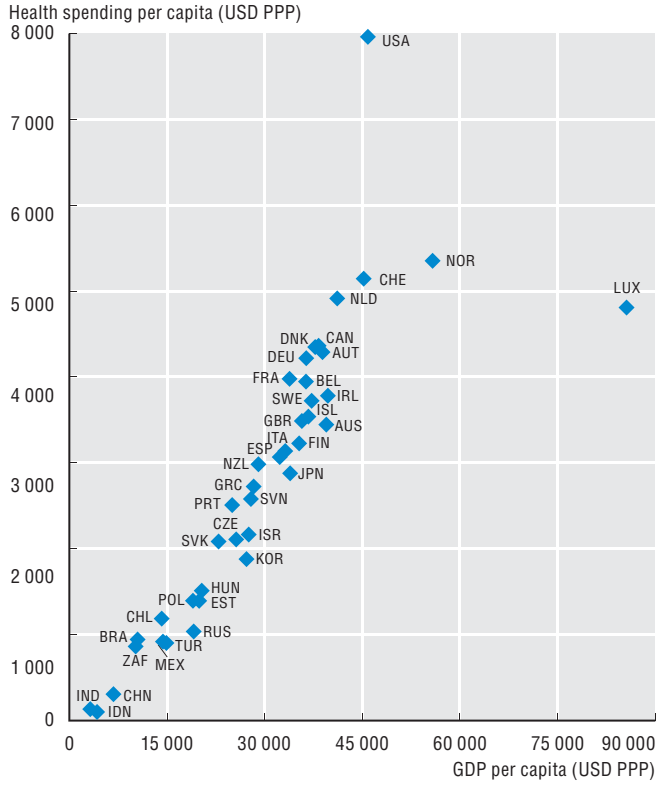
7.1.3 Total health expenditure per capita and GDP per capita, 2009 (or nearest year)



Source: OECD Health Data 2011; WHO Global Health Expenditure Database.

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7.2. Health expenditure in relation to GDP

Trends in the health spending to GDP ratio are the result of the combined effect of trends in both GDP and health expenditure. Apart from Luxembourg, health spending has grown more quickly than GDP since 2000. This has resulted in a higher share of GDP allocated to health on average across OECD countries.

In 2009, OECD countries devoted 9.6% of their GDP to health spending (Figure 7.2.1 and Table A.8), a sharp increase from 8.8% in 2008, following the recession that started in many countries in 2008 and became widespread in 2009. The rise in the health spending share of GDP was particularly marked in countries hard hit by the global recession. In Ireland, the percentage of GDP devoted to health increased from 7.7% in 2007 to 9.5% in 2009. In the United Kingdom, it rose from 8.4% in 2007 to 9.8% in 2009.

In 2009, the United States spent 17.4% of GDP on health, 5 percentage points more than in the next two countries, the Netherlands and France (which allocated 12.0% and 11.8% of their GDP on health). Of the OECD countries, Mexico and Turkey spent less than 6.5% of their GDP on health. The fast-growing economies of China and India spent 4.6% and 4.2% respectively in 2009, while South Africa and Brazil allocated 8.5% and 9.0% of GDP to health.

The share of public expenditure on health to GDP varies from a high of 9.8% of GDP in Denmark to lows of 4.0% and 3.1% of GDP in Korea and Mexico, respectively. In these two countries, health spending is more evenly split between public and private financing compared to other OECD countries.

For a more comprehensive assessment of health spending, the health spending to GDP ratio should be considered together with per capita health spending (see Indicator 7.1 "Health expenditure per capita"). Countries having a relatively high health spending to GDP ratio might have relatively low health expenditure per capita, while the converse also holds. For example, Portugal and Sweden both spent a similar proportion of their GDP on health at around 10% of GDP; however, per capita spending (adjusted to USD PPP) was close to 50% higher in Sweden (Figure 7.1.1).

Since 2000, after a period of early growth in the health spending to GDP ratio, there was a period of relative stability until 2009 (Figure 7.2.2). The subsequent reduction in GDP, due to the economic downturn, has led to a rise in the health spending to GDP ratios. The experience from previous recessions shows that, in many countries, the health spending share of GDP has tended to go up strongly during periods of economic downturns, and then to stabilise or go down only slightly during periods of economic recovery. Looking back at the experience following the recession in the early 1990s, some countries such as Canada and Finland did substantially reduce public expenditure on health to cut down their budgetary deficits, leading to a noticeable reduction in the health spending share of GDP over a few years. But these reductions in public spending on health proved to be short-lived and, after a few years of cost-containment, growing demand for and supply of health services led to a revival of health expenditure growth exceeding GDP growth again (Scherer and Devaux, 2010).

Health spending per capita since 2000 has increased more than two times faster than economic growth on average across OECD countries (4.0% *versus* 1.6%), resulting in an increasing share of the economy devoted to health in most countries (Figure 7.2.3).

Definition and comparability

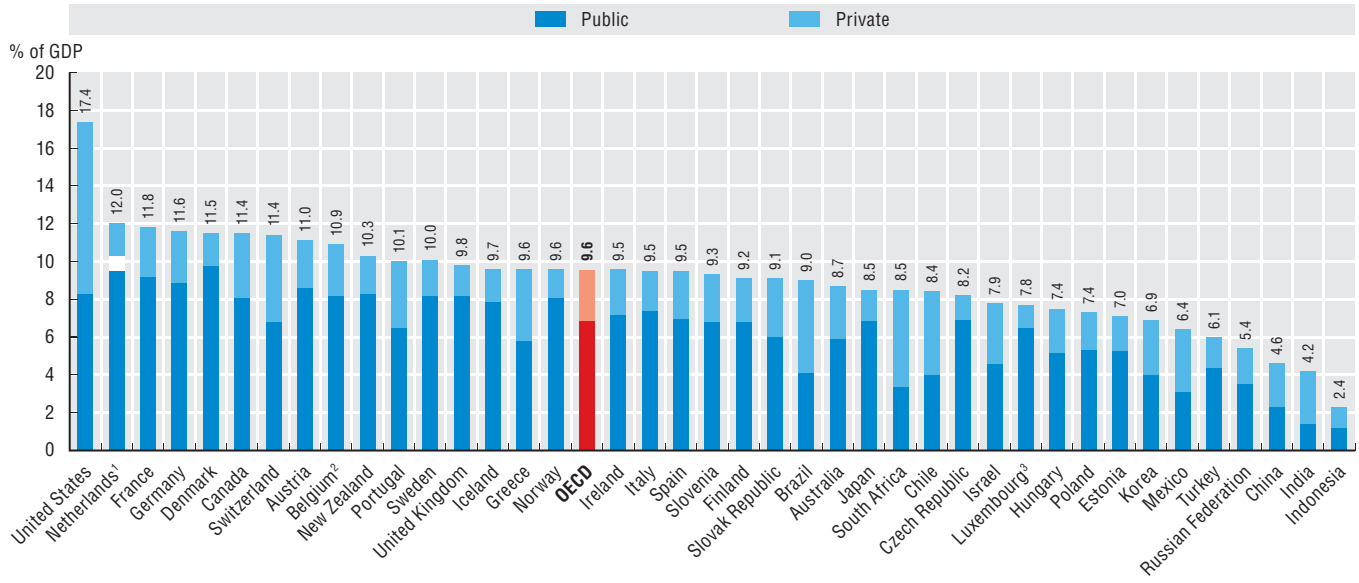
See Indicator 7.1 "Health expenditure per capita" for the definition of total health expenditure.

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, GNI may be a more meaningful measure than GDP.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.2.1 Total health expenditure as a share of GDP, 2009 (or nearest year)

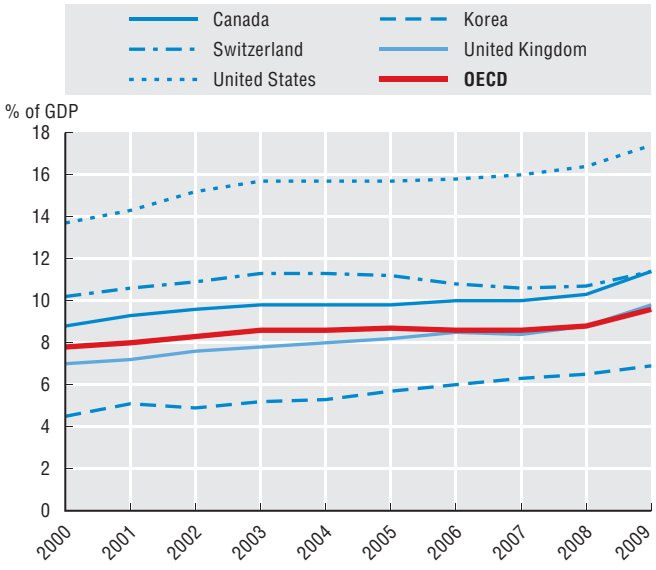


1. In the Netherlands, it is not possible to clearly distinguish the public and private share related to investments.
2. Total expenditure excluding investments.
3. Health expenditure is for the insured population rather than the resident population.

Source: OECD Health Data 2011; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932526103

7.2.2 Total health expenditure as a share of GDP, selected OECD countries, 2000-09



Source: OECD Health Data 2011.

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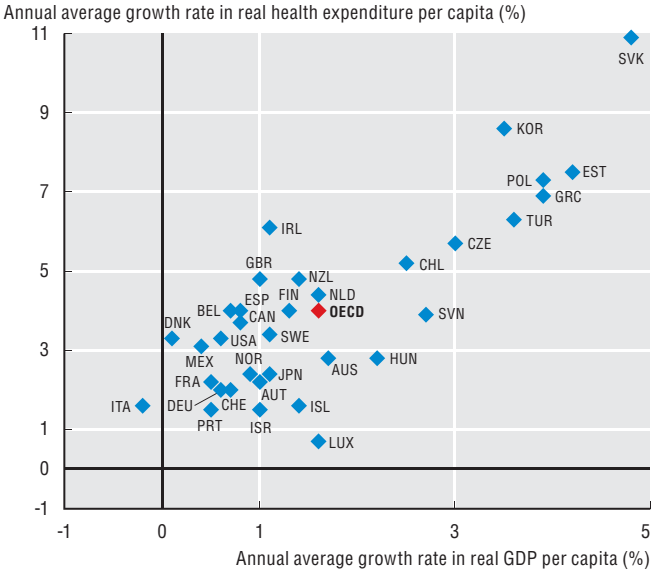
7.2.3 Annual average growth in real per capita expenditure on health and GDP, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526141

7.3. Health expenditure by function

Spending on the various types of health care services and goods is influenced by a wide range of factors: health system constraints, such as access to hospital beds, medical staff and new technology, the financial and institutional arrangements for health care delivery, as well as national clinical guidelines and the disease burden within a country.

In 2009, curative and rehabilitative care provided either as inpatient (including day care) or outpatient care accounted for more than 60% of current health spending on average across OECD countries (Figure 7.3.1). The ratio of inpatient to outpatient spending can vary according to the different organisational arrangements of health care providers and clinical practice variation between countries. Austria and France, for example, report a relatively high proportion of expenditure on inpatient care (amounting to more than a third of health spending) which is mirrored by them having the highest levels of hospital activity (see Indicator 4.4 "Hospital discharges"). Conversely, countries such as Portugal and Spain, with relatively low levels of hospital activity, allocate around a quarter of health care resources to inpatient care.

Large differences remain between countries in their expenditure on long-term care. Norway, Denmark and the Netherlands, with established and extensive formal arrangements for elderly and disabled care, allocate around a quarter of their total health spending to long-term care. By contrast, in eastern and southern European countries, where care tends to be provided in more informal or family settings, expenditure on long-term care accounts for a much smaller share of total health spending (see Indicator 8.8 "Long-term care expenditure").

The other major category of health expenditure is on medical goods, mostly accounted for by pharmaceuticals (see Indicator 7.4 "Pharmaceutical expenditure"). At 19%, on average, the share of health spending on medical goods can be as low as 11-12% in New Zealand, Denmark and Norway, but accounts for more than a third of all health spending in Hungary and the Slovak Republic.

The growth in the various components of care reflects in part the relative stage of development of health systems. With inpatient care highly labour 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 day surgery, outpatient or home-based care. However, this shift can also reflect regulatory issues. Public spending in the United States is largely Medicare and Medicaid related for which prices are tightly controlled. Thus, it can be in the interest of hospitals to shift patients to ambulatory care where there are no controls of the price of interventions (OECD, 2010b). Estimates of spending on ambulatory surgery performed by independent physicians suggested that this has been the fastest growing area of health care between 2003 and 2006 in the United States (McKinsey Global Institute, 2008). On the other hand, lower income OECD countries seeking to invest in and expand their health systems have generally seen the growth in hospital inpatient care outpace other areas of spending such that it has been the main contributor to overall health expenditure growth (Figure 7.3.2).

Figure 7.3.3 shows the share of health expenditure allocated to health care administration. On average, OECD countries allocated 3% of their spending to the management and regulation of the health system. This also includes the administration and operation of health insurance funds which goes some way to explaining the wide variations. Generally those countries operating single payer tax-based health financing systems (*e.g.* Denmark and Sweden) show a lower share of health spending allocated to administration compared to countries with multi-payer social insurance models, such as the United States, France and Germany.

Definition and comparability

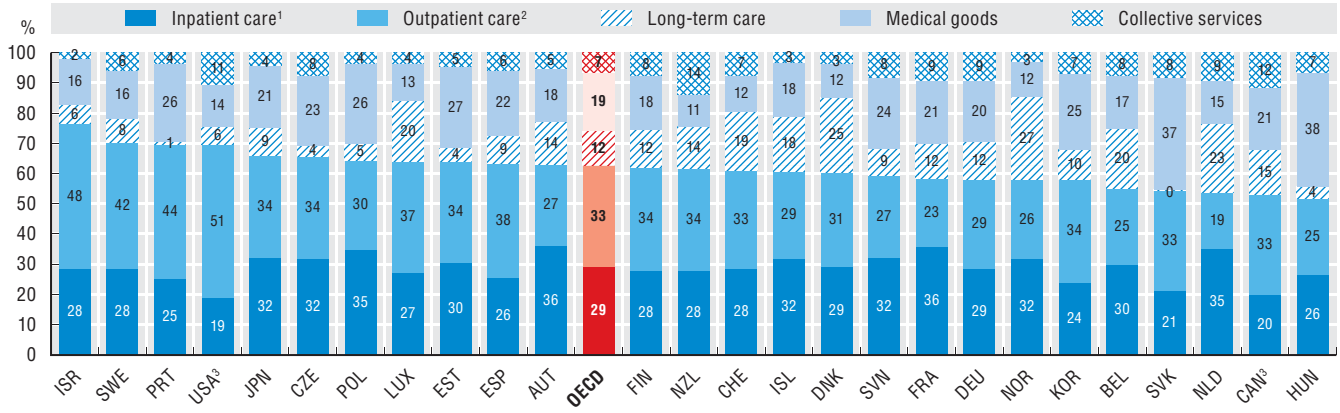
The functional approach of the *System of Health Accounts* defines the boundaries of the health system. Total health expenditure consists of current health spending and investment. Current health expenditure comprises personal health care (curative care, rehabilitative care, long-term care, ancillary 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).

Factors limiting the comparability across countries include estimations of long-term care expenditure. Also, in some cases, expenditure in hospitals is 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).

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.3.1 Current health expenditure by function of health care, 2009

Countries are ranked by curative-rehabilitative care as a share of current expenditure on health

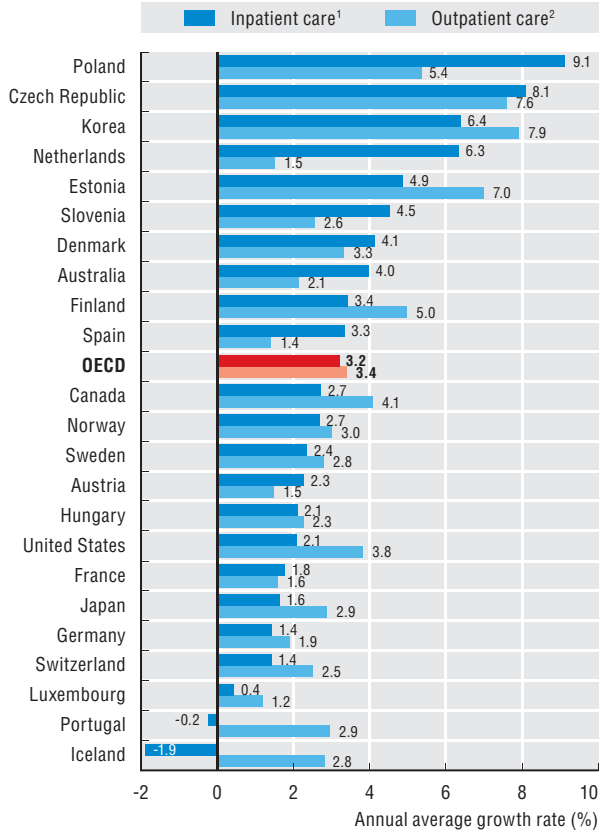


1. Refers to curative-rehabilitative care in inpatient and day-care settings.
2. Includes home-care and ancillary services.
3. Inpatient services provided by independent billing physicians are included in outpatient care for the United States and Canada.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526160

7.3.2 Growth in inpatient and outpatient care expenditure per capita, in real terms, 2000-09 (or nearest year)

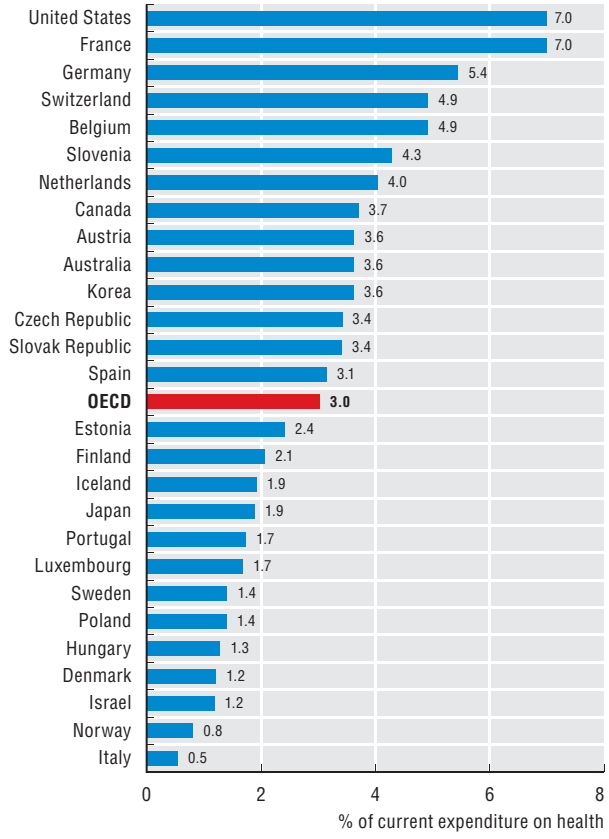


1. Including day care.
2. Including home-care and ancillary services.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526179

7.3.3 Expenditure on health care administration and insurance, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526198

7.4. Pharmaceutical expenditure

Pharmaceuticals account for almost a fifth of all health spending on average across OECD countries. The increased consumption of pharmaceuticals due to the diffusion of new drugs and the ageing of populations (see Indicator 4.11 "Pharmaceutical consumption") has been a major factor contributing to increased pharmaceutical expenditure and thus overall heath expenditure (OECD, 2008c). However, the relationship between pharmaceutical spending and total health spending is a complex one, in that increased expenditure on pharmaceuticals to tackle diseases may reduce the need for costly hospitalisations and interventions now or in the future.

The total pharmaceutical bill across OECD countries in 2009 is estimated to have reached more than USD 700 billion, accounting for around 19% of current health spending. Since 2000, average spending on pharmaceuticals has risen by almost 50% in real terms. However, considerable variation in pharmaceutical spending can be observed, reflecting differences in consumption patterns and pharmaceuticals pricing policies (Figure 7.4.1). In 2009, the United States remained the highest per capita spender on pharmaceuticals, with expenditure of USD 947, nearly twice the OECD average of USD 487. The big pharmaceutical spenders after the United States were Canada and Greece. At the other end of the scale, Mexico spent just under USD PPP 250 per capita – little more than a quarter of the United States. New Zealand and Denmark also feature among the lowest per capita spenders at less than USD 300 per capita. Self-medication or over-the-counter pharmaceutical products typically account for around 15% of the total spending.

In relation to the overall economy, pharmaceutical spending accounts for 1.5% of GDP on average in OECD countries (Figure 7.4.1). However, the dispersion around this average is high: pharmaceutical spending accounts for less than 1% of GDP in Norway, Denmark and New Zealand, while it reaches close to 2.5% of GDP in Greece, Hungary and the Slovak Republic.

Expenditures for pharmaceuticals are predominantly financed through third-party payers in most OECD countries – either through the public health insurance, which accounts for around 60% of the total on average, or through private insurance coverage, leaving a third of the total on average to the charge of households, much higher than for physician and hospital services. This is due to higher co-payments for pharmaceuticals under public insurance schemes, or a lack of coverage for non-prescribed drugs and for prescribed drugs in some countries. While in some countries, such as the Netherlands, Germany and France, the burden of pharmaceutical spending falling onto the households is less than 20%, at the other end of the spectrum, households in Estonia and Poland pick up around 60% of the total pharmaceutical bill (Figure 7.4.2).

In the past, pharmaceutical spending has tended to rise at a faster pace than total health spending in OECD countries (see Figures 7.4.3 and 7.1.2). This trend has now reversed to some extent: between 2000 and 2009, real pharmaceutical expenditure has grown by around 3.5% per year on average in OECD countries, while total health spending has increased by 4.0%. In a few countries (Luxembourg, Norway and Italy), the growth in pharmaceutical spending has actually been negative over this period. [Note that figures for Luxembourg refer only to prescribed medicines.]

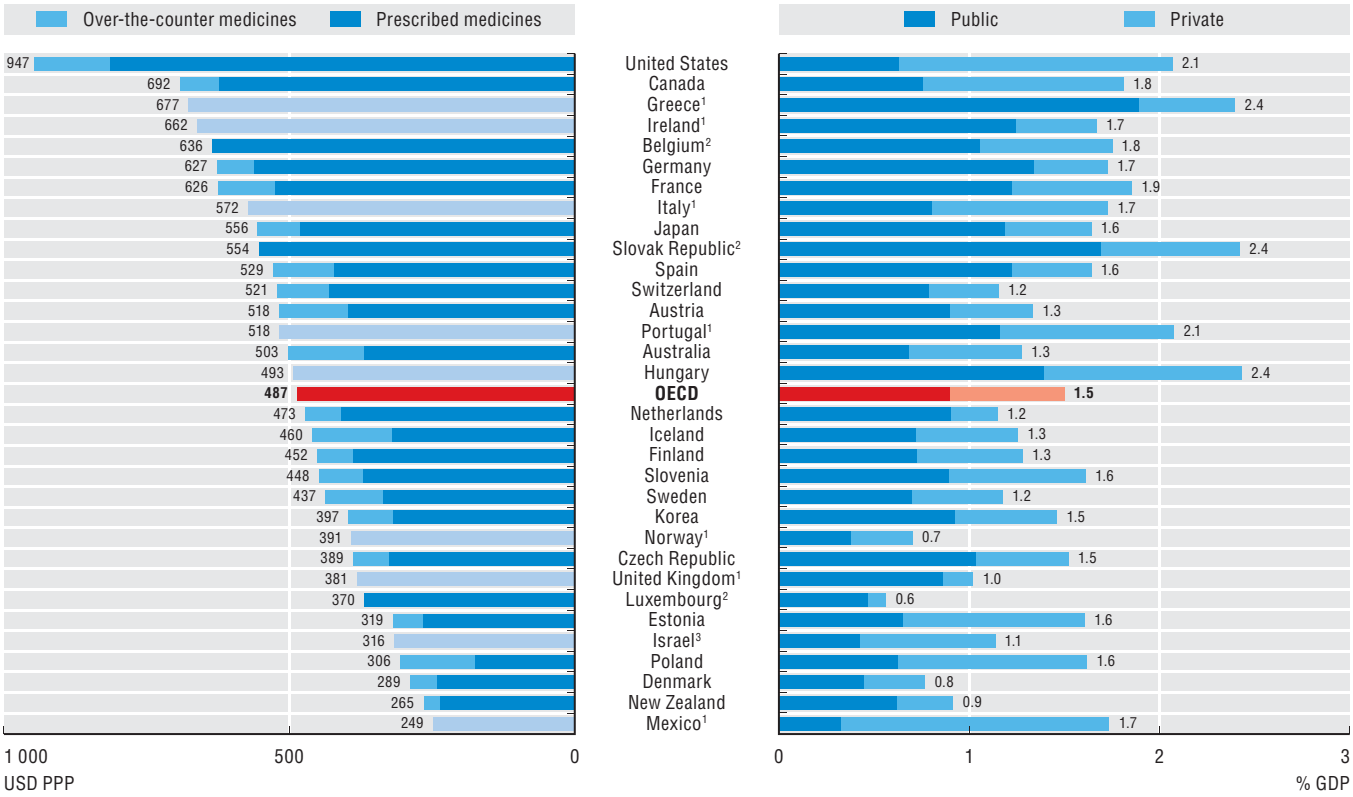
In Ireland and Greece, where pharmaceutical spending was growing at a very rapid pace, governments have recently enforced emergency measures – mainly big price reductions – and announced the implementation of more structural policy reforms. In other countries, such as France, Germany or the United Kingdom, price reductions or rebates on pharmaceuticals have often been used as adjustment variables to contain health spending growth (France), tackle health insurance funds deficits (Germany) or cap pharmaceutical companies' profits on NHS sales (the United Kingdom) (OECD, 2010b).

Definition and comparability

Pharmaceutical expenditure covers spending on prescription medicines and self-medication, often referred to as over-the-counter products. For some countries, other medical non-durables such as syringes, bandages, etc. may be included in the total. It also includes pharmacists' remuneration when the latter is separate from the price of medicines. Pharmaceuticals consumed in hospitals are excluded (on average they account for around 15% of total pharmaceutical spending). Final expenditure on pharmaceuticals includes wholesale and retail margins and value-added tax.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.4.1 Expenditure on pharmaceuticals per capita and as a share of GDP, 2009 (or nearest year)

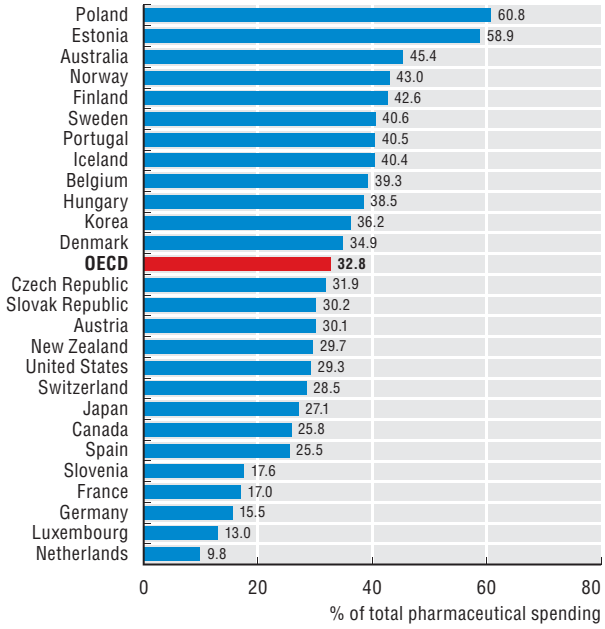


1. Cannot be separated and includes medical non-durables. 2. Prescribed medicines only. 3. Total medical goods.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526217

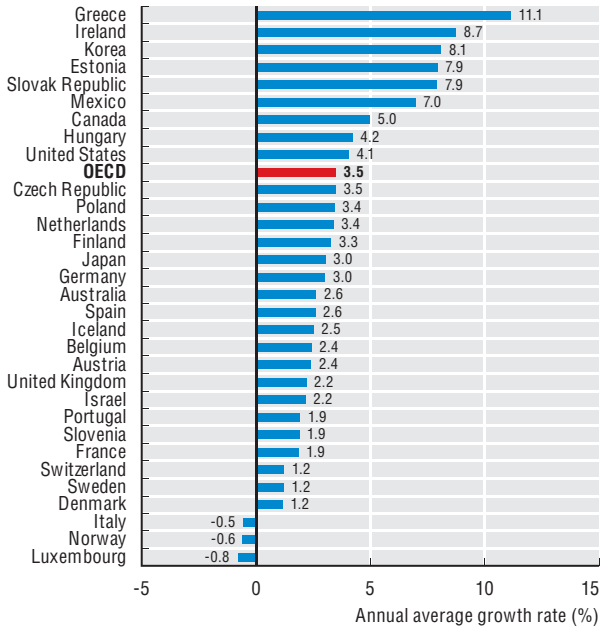
7.4.2 Out-of-pocket expenditure as a share of total pharmaceutical expenditure, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526236

7.4.3 Growth in real per capita pharmaceutical expenditure, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526255

7.5. Financing of health care

All OECD countries use a mix of public and private sources to pay for health care, but to varying degrees. Public financing is confined to government revenues in countries where central and/or local governments are primarily responsible for financing health services directly (*e.g.* Spain and Norway). It comprises both general government revenues and social contributions in countries with social insurance-based funding (*e.g.* France and Germany). Private financing, on the other hand, covers households' out-of-pocket payments (either direct or as co-payments), third-party payment arrangements effected through various forms of private health insurance, health services such as occupational health care directly provided by employers, and other direct benefits provided by charities and the like.

Figure 7.5.1 shows the breakdown of how health care services are paid for across OECD countries in 2009. The public sector remains the main source of health financing in all OECD countries, apart from Chile, Mexico and the United States. In the Netherlands, the Nordic countries (except Finland), the United Kingdom, the Czech Republic, Luxembourg, Japan and New Zealand public financing of health care accounted for more than 80% of all health expenditure. On average, the public share of total health spending was 72% in 2009, more or less unchanged over the last 20 years, although the range has tended to narrow slightly. Many of those countries with a relatively high public share in the early 1990s, such as the Czech Republic and the Slovak Republic, have decreased their share, while other countries which historically had a relatively low level (*e.g.* Portugal, Turkey) have increased their public share, reflecting health system reforms and the expansion of public coverage.

After public financing, the main financing source for health care are households themselves through so-called out-of-pocket payments. These may be co-payments or cost-sharing arrangements with public or private schemes, say for prescription pharmaceuticals, or simply direct payments borne directly by a patient for services or goods. On average across OECD countries, the share of health care expenditure covered by households was around 19% in 2009, ranging from lows of 6% and 7% in the Netherlands and France, to more than 30% in Korea, Mexico and Chile. In some central and eastern European countries, the practice of informal payments means that the level of out-of-pocket spending is probably underestimated.

Some countries have extended the coverage of their public health systems in recent years and seen the burden on households fall. In the case of Korea and Turkey, the share of health spending borne by households has fallen by around 10 percentage points since 2000 (Figure 7.5.2). On the other hand, some eastern European countries with traditionally high shares of public financing have seen charges shifted towards households over the same period.

In general, a relationship can be seen between out-of-pocket spending as a share of total health spending and the overall level of health spending itself (Figure 7.5.3). The United States, France and the Netherlands, as some of the highest spenders on of health care, also see households financing a relatively small share of the health care costs directly, with the majority of spending made through third-party arrangements – both public or private. Switzerland is notable as having a significant share of its overall high health spending being paid directly by households.

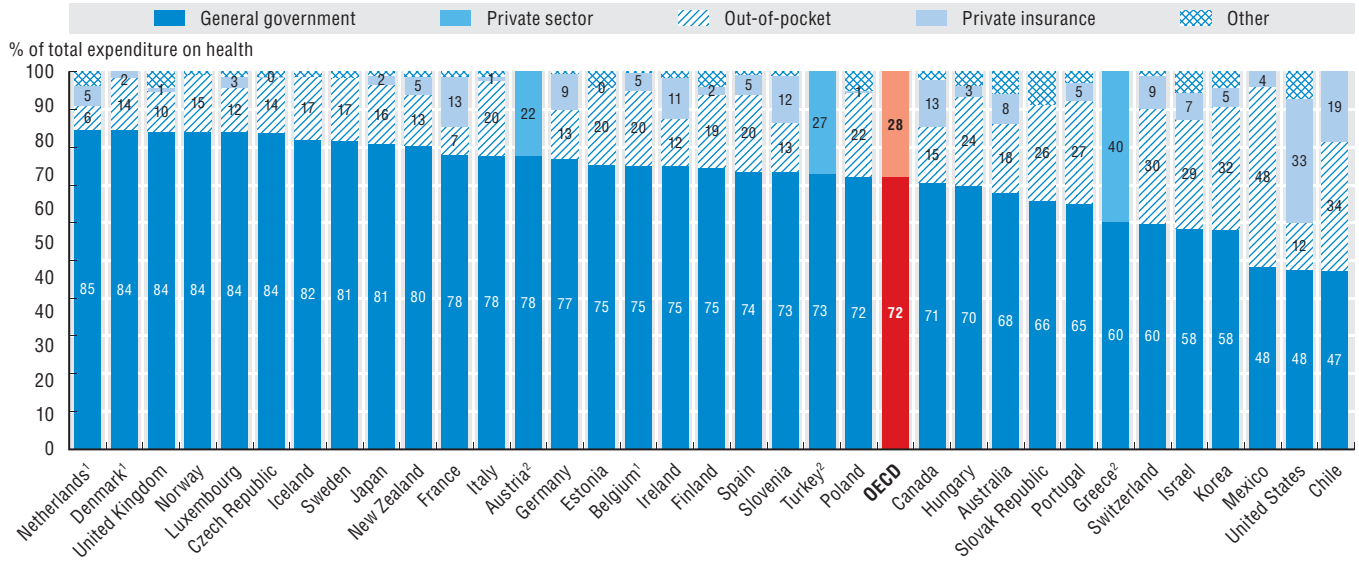
Definition and comparability

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 the financing schemes). Here "financing" is used more in the sense of financing schemes. 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.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.5.1 Expenditure on health by type of financing, 2009 (or nearest year)

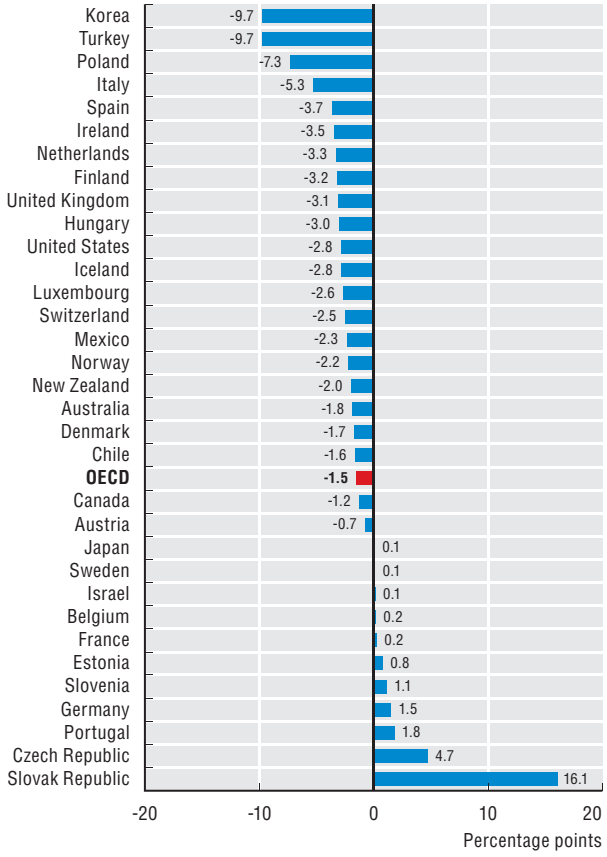


1. Current expenditure.
2. No breakdown of private financing available for latest year.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526274

7.5.2 Change in out-of-pocket spending as a share of current expenditure on health, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526293

7.5.3 Out-of-pocket and current expenditure on health, 2009 (or nearest year)

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526312

7.6. Trade in health services (medical tourism)

Trade in health services and its most high-profile component, medical tourism, has attracted a great deal of media attention in recent years. The impression often given is that large numbers of patients are actively seeking health care abroad or buying their pharmaceuticals over the Internet from foreign providers. The apparent growth in "imports" and "exports" has been fuelled by a number of factors. Technological advances in information communication systems allow patients or third party purchasers of health care the possibility 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 coverage, 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 reasons 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.

The available data for OECD countries show that total reported exports and imports of health-related travel each amounted to more than USD 6 billion in 2009. Due to data gaps and under-reporting, this is likely to be a significant underestimate. Nevertheless, it is clear that, in comparison to the size of total health expenditure, spending on health-related travel is marginal for most countries, but growing. For example, while Germany reports the highest level of imports in absolute terms, this represents only around 0.5% of Germany's current health expenditure (Figure 7.6.1). Smaller countries such as Iceland and Portugal see a higher level of cross-border movement of patients, but still this only represents around 1% of health spending. Luxembourg is a particular case with a large part of its insured population living and consuming health services in neighbouring countries.

Although the United States is by far the largest exporter, reporting some USD 2.3 billion of exports in 2009, in relation to overall spending on health, this remains largely insignificant (Figure 7.6.2). On the other hand, some central and eastern European countries have become popular destinations for patients from other European countries, particularly for services such as dental surgery. Health-related exports in the Czech Republic and Hungary were equivalent to 3.6% and 2.1% of total health spending respectively. Annual growth over the past five years has been significantly high in both the Czech Republic and Poland at 28% and 42% per year.

Patient mobility in Europe could, however, receive a further boost as the European Commission has sought to clarify patients' rights for treatment coverage in other member states. Many of the proposed changes in European regulations try to strike a balance between the rights of patients to seek health care and the responsibilities of states to organise the delivery of health services. The European Parliament approved the amended cross-border health care bill in January 2011 with the law due to become effective in 2013.

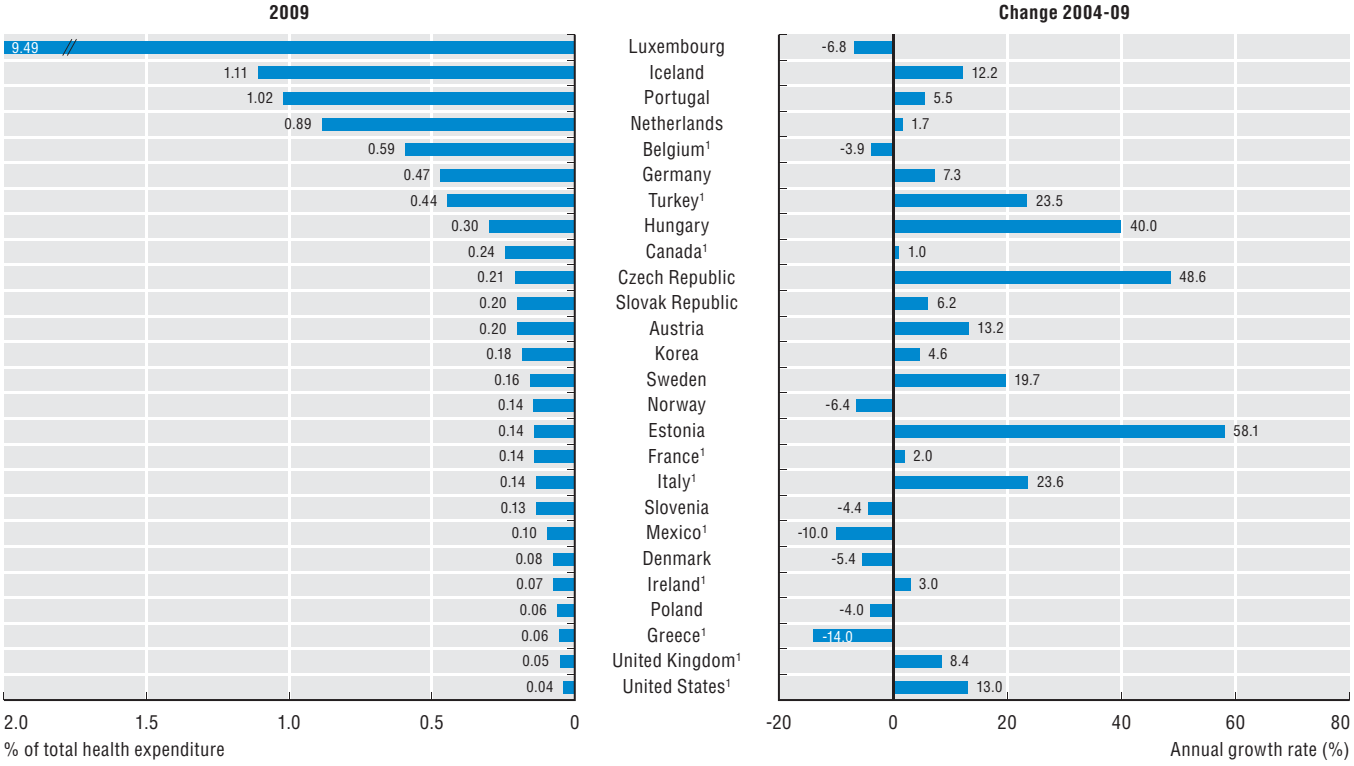
Definition and comparability

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". In the balance of payments, trade refers to goods and services transactions between residents and non-residents of an economy.

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. This trade is not well reported by many of the countries reporting health accounts according to the SHA. Exports are not currently recorded under the System of Health Accounts and there remain limits regarding comparability.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

7.6.1 Imports of health care services as share of total health expenditure, 2009 and annual growth rate in real terms, 2004-09 (or nearest year)

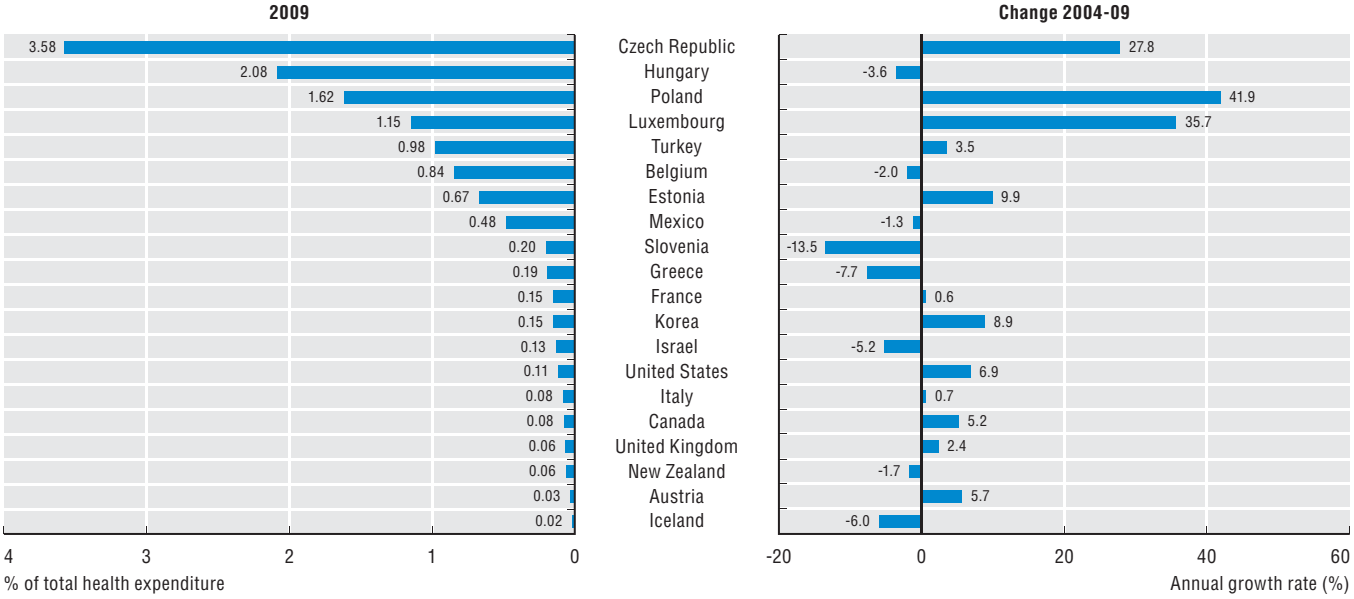


1. Refers to balance-of-payments concept of health-related travel.

Source: OECD Health Data 2011 and *OECD-Eurostat Trade in Services Database*.

StatLink http://dx.doi.org/10.1787/888932526331

7.6.2 Exports of health-related travel as share of total health expenditure, 2009 and annual growth rate in real terms, 2004-09 (or nearest year)



Note: Health-related travel exports occur when domestic providers supply medical services to non-residents travelling for medical reasons.

Source: OECD-Eurostat Trade in Services Database.

StatLink http://dx.doi.org/10.1787/888932526350

8. LONG-TERM CARE

8.1. Life expectancy and healthy life expectancy at age 65

8.2. Self-reported health and disability at age 65

8.3. Prevalence and economic burden of dementia

8.4. Recipients of long-term care

8.5. Informal carers

8.6. Long-term care workers

8.7. Long-term care beds in institutions and hospitals

8.8. Long-term care expenditure

8.1. Life expectancy and healthy life expectancy at age 65

In OECD countries, life expectancy at age 65 has increased significantly for both men and women during the past 50 years. Some of the factors explaining the gains in life expectancy at age 65 include advances in medical care combined with greater access to health care, healthier lifestyles and improved living conditions before and after people reach age 65.

A growing share of the population is now age 65 and older. Whether longer life expectancy is accompanied by good health among ageing populations has important implications for health and long-term care systems.

In 2009, people at age 65 in OECD countries could expect to live for another 20.5 years on average for women and 17.2 years for men (Figure 8.1.1). Life expectancy at age 65 in the OECD was the highest in Japan for women (24.0 years) and Switzerland for men (19.0 years). Life expectancy at age 65 is lower in Turkey as well as in some of the major emerging economies such as South Africa and the Russian Federation.

On average across OECD countries, life expectancy at age 65 has increased by 5.6 years for women and 4.4 years for men since 1960. While the gender gap in life expectancy at age 65 widened in many countries in the 1960s and the 1970s, it has slightly narrowed over the past 30 years. In some countries such as the United States, New Zealand and the United Kingdom, the overall gains in life expectancy at age 65 since 1960 have been greater for men than for women.

Japan has achieved the highest gains in life expectancy at age 65 since 1960, with an increase of almost ten years for women and over seven years for men. The gains in life expectancy have been more modest in some central and eastern European countries, such as the Slovak Republic and Hungary, particularly for men.

Increased life expectancy at age 65 does not necessarily mean that the extra years lived are in good health. In Europe, an indicator of disability-free life expectancy known as healthy life years has recently been developed and is calculated regularly, based on a general question about disability in the European Survey of Income and Living Conditions (EU-SILC). Given that this indicator has only recently been developed, long time series are not yet available.

In 2009, among European countries participating in the survey, the average number of healthy life years at age 65 was almost the same for women and men, at 9.0 years for women and 8.8 years for men. The absence of any significant gender gap in healthy life years means that women are more likely to live with some type of activity limitation after age 65 than men. Sweden and Norway had the highest number of healthy life years at age 65 in 2009, with 14 years or more for women and 13.5 years for men. The Slovak Republic had the lowest number of healthy life years at less than five for both women and men (Figure 8.1.2).

Other OECD countries also calculate similar indicators of disability-free life expectancy, although the survey instruments to measure disability may vary slightly. In Japan, disability-free life expectancy at aged 65 was estimated to be 15.6 years for women and 12.6 years for men in 2004 (Cabinet Office, Government of Japan, 2006). In the United States, females born in 2001-02 can expect to live 66.9 years free from activity limitation, and males 63.6 years (US Department of Health and Human Services, 2006).

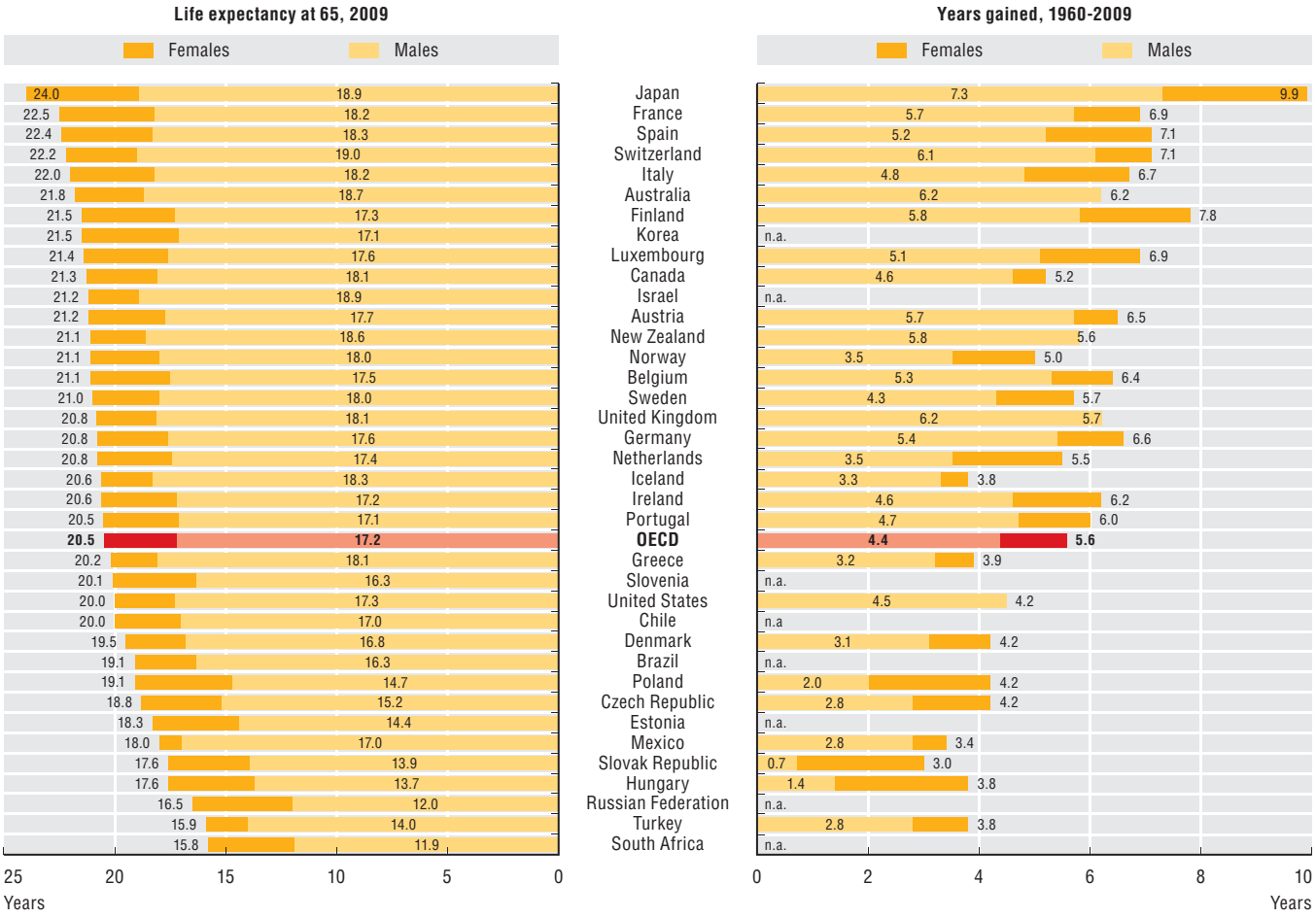
Definition and comparability

Life expectancy measures how long on average a person of a given age can expect to live, if current death rates do not change. However, the actual age-specific death rate of any particular birth cohort cannot be known in advance. If rates are falling, as has been the case over the past decades in OECD countries, actual life spans will be higher than life expectancy calculated using current death rates. The methodology used to calculate life expectancy can vary slightly between countries. This can change a country's estimates by a fraction of a year.

Disability-free life expectancy, or healthy life years, are the number of years spent free of activity limitation. In Europe, Healthy Life Years are calculated annually by Eurostat for EU countries and some EFTA countries using the Sullivan method (Sullivan, 1971). The disability measure is the Global Activity Limitation Indicator (GALI) which comes from the European Union Statistics on Income and Living Conditions (EU-SILC) survey. The GALI measures limitation in usual activities due to health problems.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

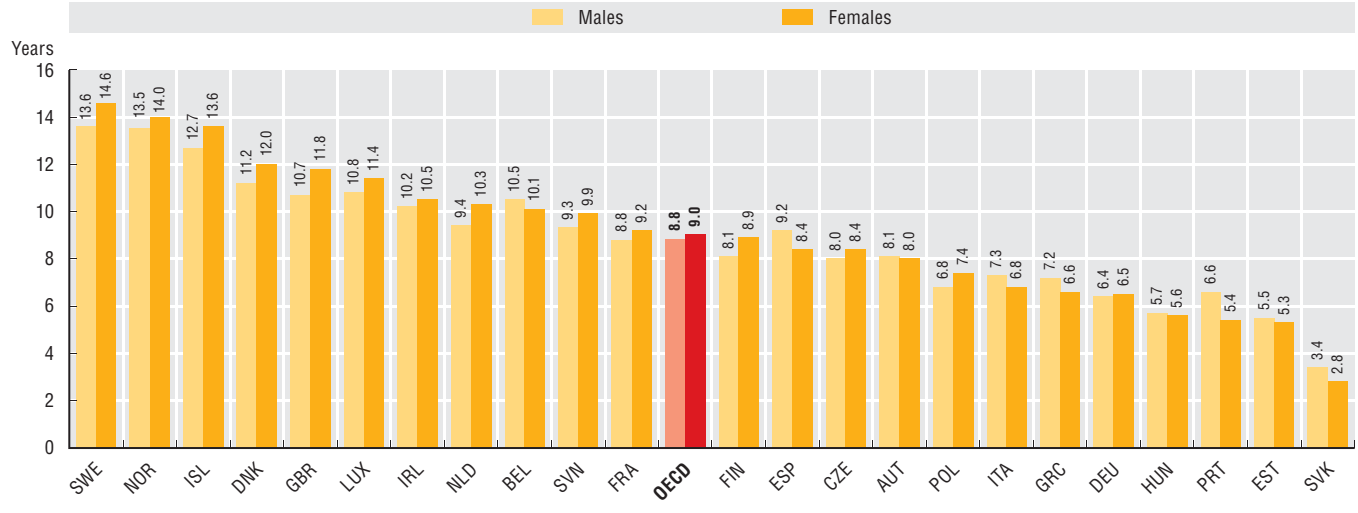
8.1.1 Life expectancy at age 65, 2009 and years gained since 1960 (or nearest year)



Source: *OECD Health Data 2011* and national sources for the Russian Federation, South Africa and Brazil.

StatLink http://dx.doi.org/10.1787/888932526369

8.1.2 Healthy life years at age 65, European countries, 2009



Source: European Health and Life Expectancy Information System (EHLEIS); *Eurostat Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932526388

8.2. Self-reported health and disability at age 65

Most OECD countries conduct regular health surveys which allow respondents to report on different aspects of their health. A question that is often found among such surveys relates to self-perceived health status, and is usually similar to: "How is your health in general?". Although these questions are subjective, indicators of perceived general health have been found to be a good predictor of people's future health care use and mortality (see Miilunpalo *et al.*, 1997). However, cross-country differences in perceived health status may be difficult to interpret. This is because survey questions may differ slightly, and cultural factors can affect responses.

Keeping these limitations in mind, more than half of the population aged 65 years and over rate their health to be good or better in 12 of the 31 OECD countries for which data are available (Figure 8.2.1). New Zealand, the United States, Canada have the highest percentage of older people assessing their health to be good or better, with at least three out of four people reporting to be in good health. But the response categories offered to survey respondents in these three countries are different from those used in most other OECD countries, introducing an upward bias in the results (see box on "Definition and comparability").

In Israel and Spain, around 40% of persons aged 65 years and over rate their health as good. In Poland, Portugal and Estonia, the figure was less than 15%. In almost all countries, men over 65 were more likely than women to rate their health as good or better, the exceptions being Australia and Chile. On average across OECD countries, 49% of men aged over 65 rate their health to be good or better, while 42% of women do so.

The percentage of the population aged 65 years and over who rate their health as being good or better has remained fairly stable over the past 30 years in most countries where long time series are available. Some improvement is evident in the United States, where the share has increased from 70% in 1980 to 76% in 2009.

Measures of disability are not yet standardised across countries. In Europe, based on the EU Survey of Income and Living Conditions, 43% of people aged between 65 and 74 years reported that they were limited in their usual daily activities because of a health problem in 2009, this being one common definition of disability. The proportion rises to 60% for people aged 75 and over (Figure 8.2.2). While a large proportion of the population reported only moderate activity limitation, over 14% aged 65-74 years, and 25% aged 75 years and over reported being severely limited, on average among a group of 24 European OECD countries. Severe activity limitations are more likely to create needs for long-term care, whether formal or informal.

People in Nordic countries reported the lowest level of moderate or severe disability, with the exception of Finland, where self-reported disability rates are higher and close to the European average. The highest rate of self-reported disability rates are in the Slovak Republic, followed by Portugal and Estonia.

Definition and comparability

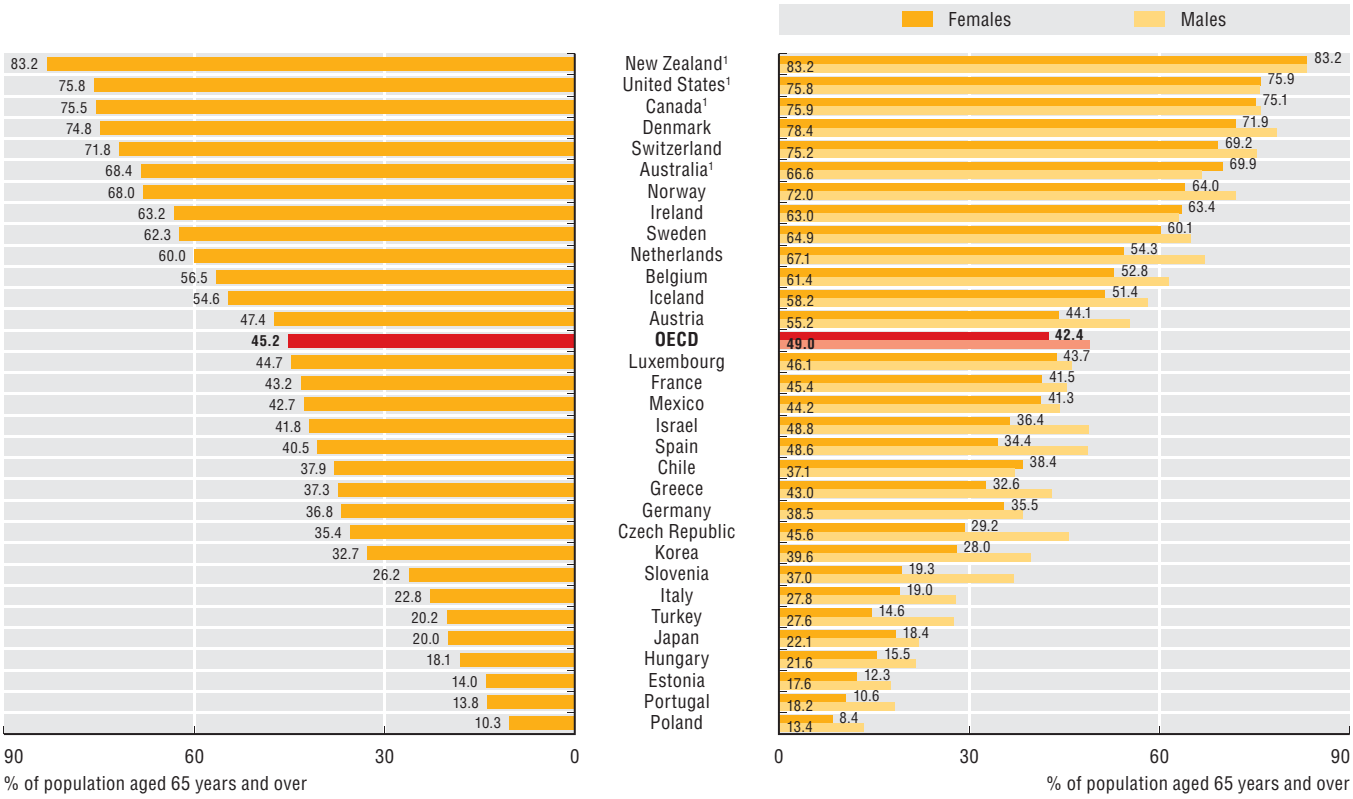
Self-reported health reflects people's overall perception of their own health, including both physical and psychological dimensions. Typically, survey respondents are asked a question such as: "How is your health in general? Very good, good, fair, poor, very poor". *OECD Health Data* provides figures related to the proportion of people rating their health to be "good/very good" combined.

Caution is required in making cross-country comparisons of perceived health status, for at least two reasons. First, people's assessment of their health is subjective and can be affected by cultural factors. Second, there are variations in the question and answer categories used to measure perceived health across surveys/countries. In particular, the response scale used in Australia, Canada, New Zealand and the United States is asymmetric (skewed on the positive side), including the following response categories: "excellent, very good, good, fair, poor". The data reported in *OECD Health Data* refer to respondents answering one of the three positive responses ("excellent, very good or good"). By contrast, in most other OECD countries, the response scale is symmetric, with response categories being: "very good, good, fair, poor, very poor". The data reported from these countries refer only to the first two categories ("very good, good"). Such difference in response categories biases upward the results from those countries that are using an asymmetric scale.

Perceived general disability is measured in the EU-SILC survey through the question: "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, resulting in an underestimation of disability prevalence. Again, the measure is subjective, and cultural factors may affect survey responses.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

8.2.1 Population aged 65 years and over reporting to be in good health, 2009 (or nearest year)

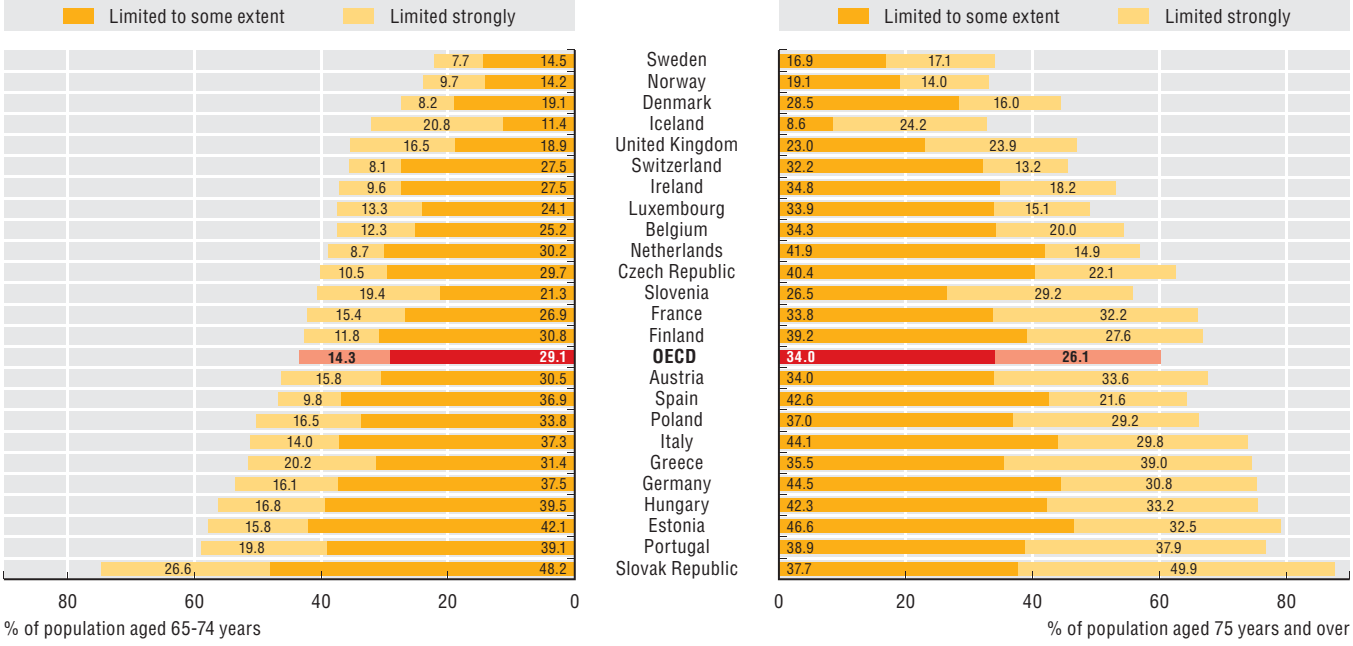


1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in an upward bias.

Source: *OECD Health Data 2011.*

StatLink http://dx.doi.org/10.1787/888932526407

8.2.2 Limitations in daily activities, population aged 65-74 years and 75 years and over, 2009



Source: European Union Statistics on Income and Living Conditions 2009.

StatLink http://dx.doi.org/10.1787/888932526426

8.3. Prevalence and economic burden of dementia

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. Alzheimer's disease is the most common form of dementia, representing about 60% to 80% of cases. Currently, there is no treatment that can halt dementia, but pharmaceutical drugs and other interventions can slow the progression of the disease.

In 2009, there were an estimated 14 million people aged 60 years and over suffering from dementia in OECD countries, accounting for more than 5% of the population in that age group, according to estimates by Wimo *et al.* (2010) (Figure 8.3.1). France, Italy, Switzerland, Spain and Sweden had the highest prevalence, with 6.3% to 6.5% of the population aged 60 years or older estimated as having dementia. The prevalence rate was only about half these rates in some emerging economies including South Africa, Indonesia and India, although this in part reflects fewer detected cases.

Clinical symptoms of dementia usually begin after the age of 60, and the prevalence increases markedly with age (Figure 8.3.2). 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. A similar pattern is observed in Australia (Alzheimer's Australia, 2009). 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 and an imputation method for countries lacking specific cost data to estimate the direct costs of dementia, including only the resources used to care for people with dementia. For those countries where an imputation was necessary, it was assumed that the expenditures per person with dementia as a share of GDP were similar to those found in countries with available data. In 2009, the direct costs of dementia were estimated at 0.5% of GDP on average among OECD countries. Direct costs were highest in Italy and Japan, reaching close to 0.8% of GDP (Figure 8.3.3). As expected, countries that have a higher prevalence of dementia tend to spend more than those with a lower prevalence (Maslow, 2010).

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 in Australia, Austria, Canada, France, the United States and other countries typically involve measures to improve early diagnosis, promote quality of care for people with dementia, and support informal care givers (Wortmann, 2009; Juva, 2009; Ersek *et al.*, 2009; Kenigsberg, 2009).

Definition and comparability

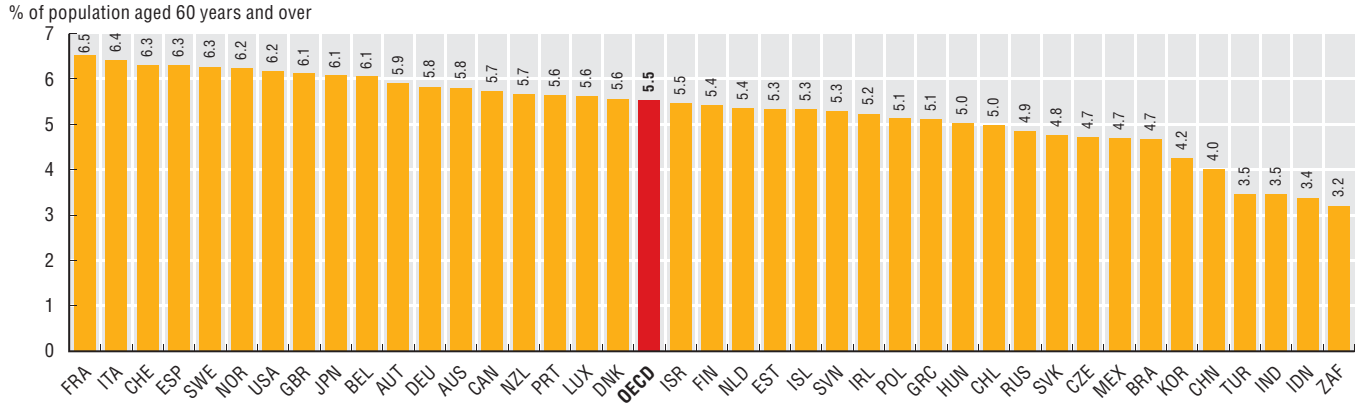
Dementia prevalence rates are based on estimates of the total number of persons aged 60 years and over living with dementia divided by the size of the corresponding population. Estimates by Wimo *et al.* (2010) are based on previous national epidemiological studies and meta-analyses.

Wimo *et al.* (2010) used cost-of-illness studies from different countries and an imputation method for countries lacking specific cost data to estimate the direct costs of dementia, including only the resources used to care for people with dementia. For countries where an imputation was necessary, it was assumed that the expenditures per person with dementia as a share of GDP were similar to those found in countries with available data. All cost figures are expressed as constant USD in 2009, adjusted for purchasing power parities (PPPs). Cost studies are inherently difficult, especially when there are co-morbidities.

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

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

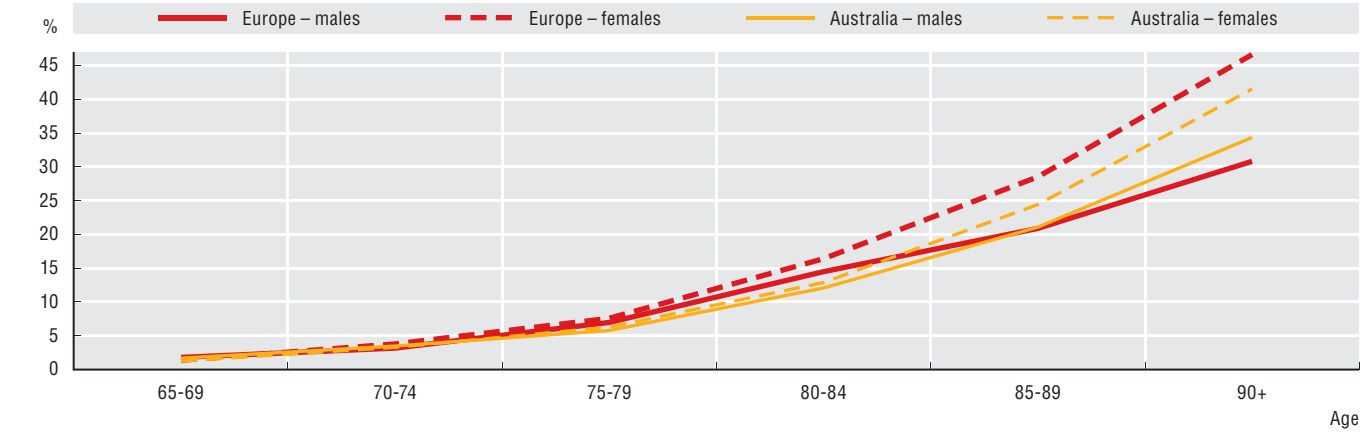
8.3.1 Prevalence of dementia among the population aged 60 years and over, 2009



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

StatLink http://dx.doi.org/10.1787/888932526445

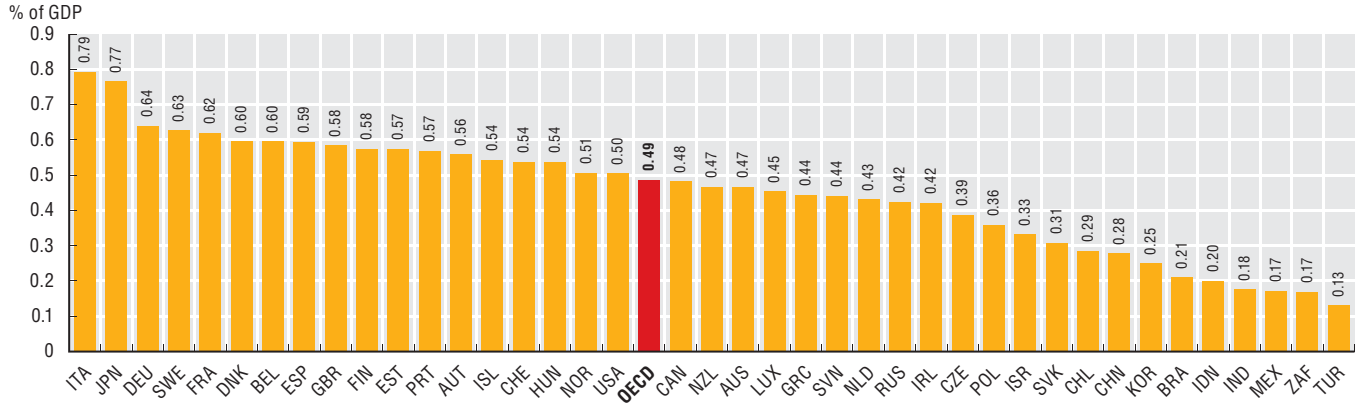
8.3.2 Age- and gender-specific prevalence of dementia in Europe and Australia, 2009



Source: Alzheimer Europe (2009); Alzheimer's Australia (2009).

StatLink http://dx.doi.org/10.1787/888932526464

8.3.3 Direct cost of dementia for population aged 60 years and over, as a share of GDP, 2009



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

StatLink http://dx.doi.org/10.1787/888932526483

8.4. Recipients of long-term care

The number of people receiving long-term care (LTC) in OECD countries is rising, mainly due to population ageing and the growing number of elderly dependent persons, as well as the development of new programmes and services in several countries. In response to most people's preference to receive LTC services at home, an important trend in many OECD countries over the past decade has been the implementation of different types of programmes to support home-based care.

Although the receipt of long-term care is not limited to elderly people, the vast majority of LTC recipients are over 65 years of age. Most of them are also women, because of their higher life expectancy combined with a higher prevalence of disabilities and functional limitations in old age.

On average across OECD countries, about 12% of the population aged 65 and over were receiving some long-term care services at home or in institutions in 2009 (Figure 8.4.1). The use of long-term care services increases sharply with age, with people aged 80 and older being more than six times more likely to receive long-term care than people aged 65-79 in many countries.

The number of LTC recipients as a share of the population 65 years and over was the highest in Austria in 2009, with almost one-fourth of the senior population receiving long-term care benefits either in institutions or at home. On the other hand, only about 1% of the senior population in Poland and Portugal receive formal LTC services, with most of them receiving care in institutions, although many more may receive informal care from family members at home.

Over the past decade, many OECD countries have introduced programmes to promote the delivery of long-term care at home. Several countries have expanded community-based services and home care coverage and support (*e.g.* Canada, Ireland and Sweden). Some countries have introduced financial support for users, for instance in the form of cash benefits for LTC recipients at home in Austria and the Netherlands.

In most countries for which trend data are available, the number of people receiving long-term care at home as a share of the total number of LTC recipients has increased over the past ten years (Figure 8.4.2). The proportion of LTC recipients at home is the highest in Japan and Norway. In both countries, the proportion has gone up over the past decade, so that now more than three-quarters of LTC recipients receive care at home. The share of home-based care recipients has also increased in Sweden, Luxembourg and Hungary. In Hungary, LTC in institutions has been restricted by budgetary constraints and stricter admission criteria. In Finland, there has been a significant reduction in the share of home-based care recipients over the past decade. The number of people receiving LTC at home has not declined, but it has grown at a much slower rate than the number of people receiving care in institutions. This may be due to the fact that a larger number of people have more severe conditions or that they live in remote areas where home-based care options may be limited.

In the United States, only around half of LTC recipients receive care at home. This may partly reflect a traditional bias towards supporting institutional-based care. Financial support to promote home-based care has only been implemented by certain states. Additional support may be needed in the United States and in other countries to further encourage home-based care (Colombo *et al.*, 2011).

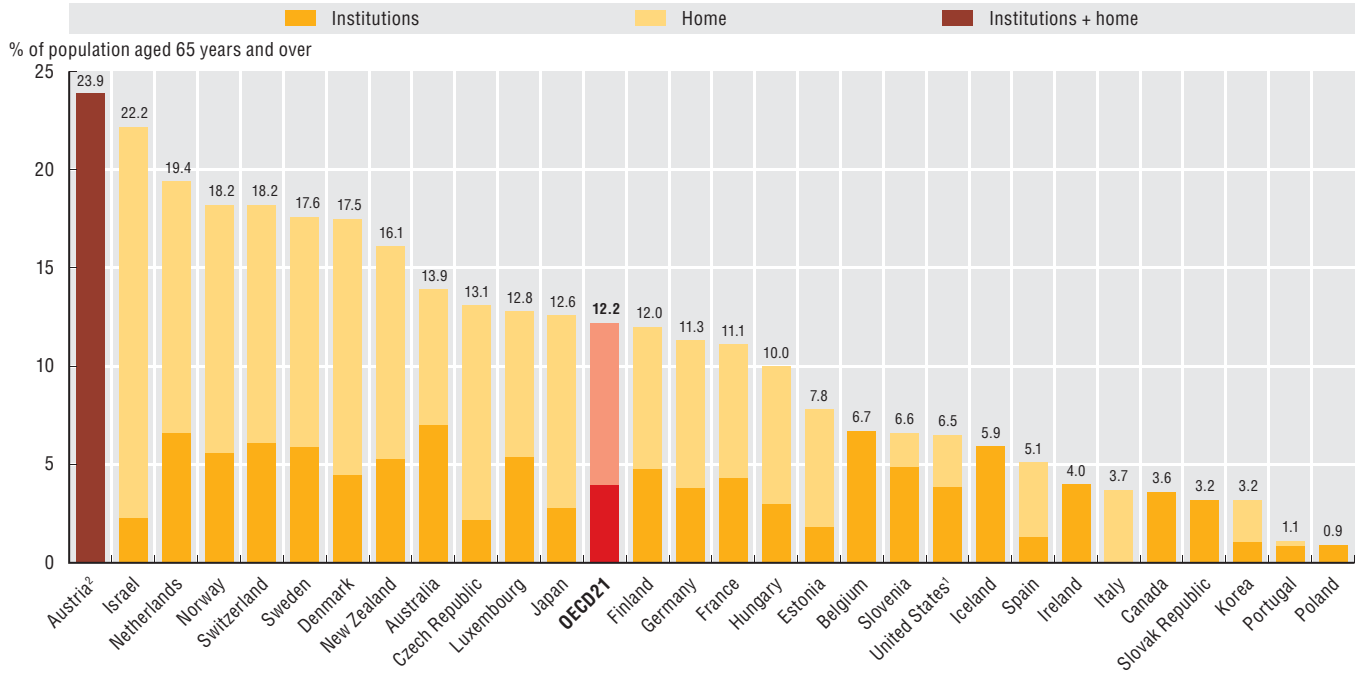
Definition and comparability

LTC recipients are defined as persons receiving long-term care by paid providers, including non-professionals receiving cash payments under a social programme. They also include recipients of cash benefits such as consumer-choice programmes, care allowances or other social benefits which are granted with the primary goal of supporting people with long-term care needs. Long-term care institutions refer to nursing and residential care facilities which provide accommodation and long-term care as a package. Long-term care at home is defined as people with functional restrictions who receive most of their care at home. Home care also includes specially designed or adapted living arrangements.

Data for Japan underestimate the number of recipients in institutions because many elderly people receive long-term care in hospitals. In the Czech Republic, LTC recipients refer to recipients of the care allowance (*i.e.* cash allowance paid to eligible dependent persons). In Poland and Spain, the data underestimate the total number of LTC recipients due to partial coverage of facilities or services. In Australia, the data do not include recipients who access the Veterans' Home Care Program and those who access services under the National Disability Agreement. With regard to the age threshold, data for Austria, Belgium, France and Poland refer to people aged over 60, while they refer to people over 62 in the Slovak Republic (this is resulting in a slight underestimation of the share in these countries, given that a much smaller proportion of people aged 60-65 or 62-65 receive LTC compared with older age groups). LTC recipients refer to people aged over 67 in Norway.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

8.4.1 Population aged 65 years and over receiving long-term care, 2009 (or nearest year)

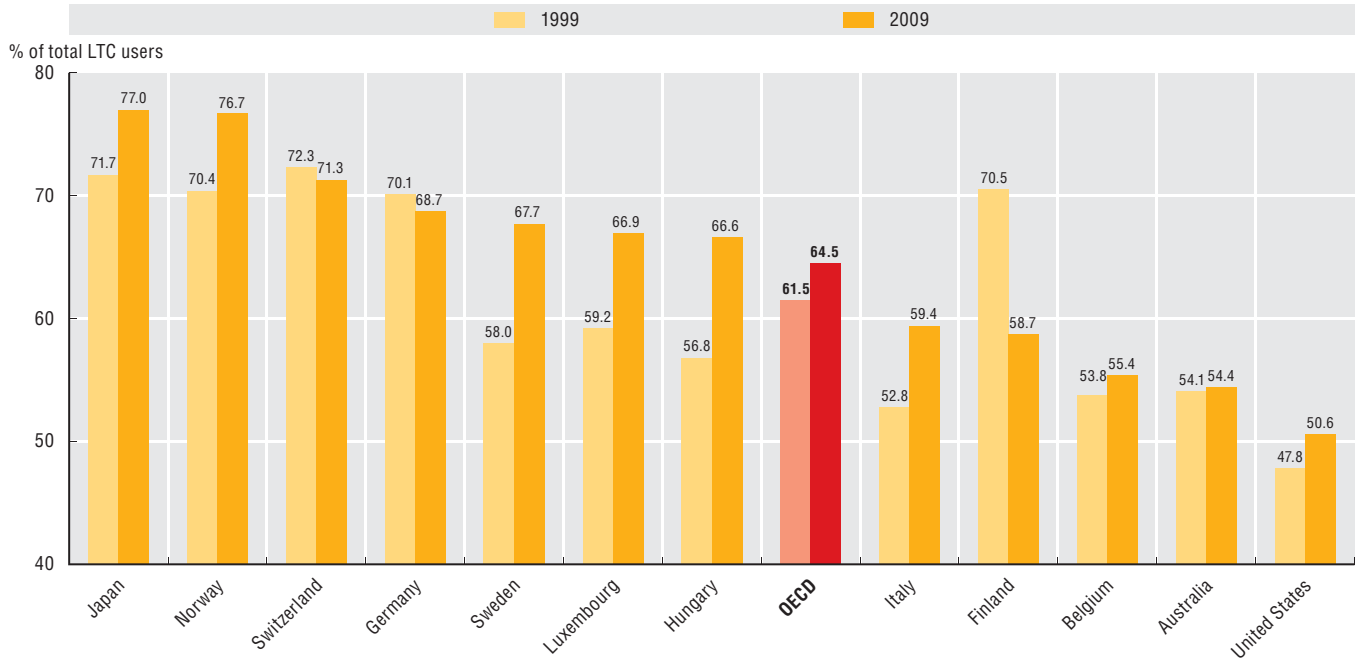


1. In the United States, data for home care recipients refer to 2007 and data for recipients in institutions refer to 2004.
2. In Austria, it is not possible to distinguish LTC recipients at home or in institutions. The data refer to people receiving an allowance for LTC, regardless of whether the care is provided at home or in institutions. Because of this, Austria is not included in the OECD average.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526502

8.4.2 Share of long-term care recipients receiving care at home, 1999 and 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526521

8.5. Informal carers

Informal carers are the backbone of long-term care systems in all OECD countries, although there are substantial variations across countries on the relative importance of informal care giving by family members compared with the use of more formal long-term care providers. Because of the informal nature of care provided by family members, it is not easy to get comparable data on the number of informal carers across countries, nor on the amount of time that they devote to care giving. The data presented in this section come from national or international health surveys, and refer to people aged 50 years and over who report providing care and assistance to a family member for activities of daily living (ADL).

On average across OECD countries, one-in-nine people aged 50 and over reported providing care and ADL assistance for a dependent relative around 2007. The percentage ranges from a low of 8% in Sweden, where formal care provision is more developed, to a rate about two-times greater in Italy and Spain (Figure 8.5.1). In Italy, the high proportion of people reporting to provide care to a family member is associated with relatively few formal (paid) LTC workers (see Indicator 8.6 "Long-term care workers").

Most informal carers are women. On average across countries, about 66% of carers between the age of 50 and 64 are women. Among the population aged 75 and over, this percentage drops slightly to about 60% (Figure 8.5.2).

Many informal carers provide a limited number of hours of care per week, although there is wide variation across countries (Figure 8.5.3). On average across countries, slightly more than 50% of carers provide less than ten hours of care per week. This proportion is particularly high in some Nordic countries (Denmark and Sweden), where a greater share of LTC services is provided by paid workers. By contrast, in Korea as well as in some southern European countries (Spain, Greece and Italy) and in the Czech Republic and Poland, most informal care givers spend more time providing care to a family member. In the United States also, a high proportion of informal care givers provide over ten hours of care per week, with many of them providing more than 20 hours.

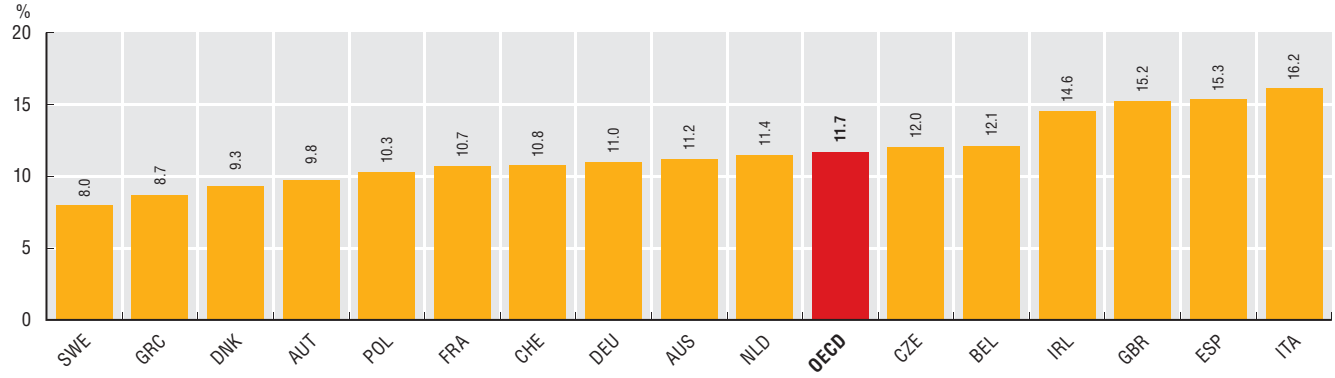
Intensive care giving is associated with a reduction in labour force attachment for care givers of working age, higher poverty rates, and a higher prevalence of mental health problems. Many OECD countries have implemented policies to support informal carers with a view to mitigate these negative impacts. These include paid care leave (*e.g.* Belgium), allowing flexible work schedules (*e.g.* Australia and the United States), providing respite care (*e.g.* Austria, Denmark and Germany) as well as counselling/training services (*e.g.* Sweden). Moreover, a number of OECD countries provide cash benefits to informal care givers or cash-for-care allowances for recipients which can be used to pay informal care givers (Colombo *et al.*, 2011).

Recent OECD work has estimated that the potential pool of working-age and older informal carers is likely to shrink in the coming decades as a result of declining family size, changes in residential patterns of people with disabilities, and rising participation rates of women in the labour market. Across OECD countries, the share of people aged over 80 years, compared with the population share aged 15 to 80, will almost triple in coming decades, rising from 5% in 2010 to close to 13% in 2050. Therefore, it is likely that a greater share of people providing informal care may be required to provide high-intensity care. Without adequate support, informal care giving might exacerbate employment and health inequalities (Colombo *et al.*, 2011).

Definition and comparability

Informal carers are defined as people providing assistance with basic activities of daily living (ADL) for at least one hour per week. The data relate only to the population aged 50 and over, and are based on national or international health surveys. Data for the United States include care provided for parents only. Survey results may be affected by reporting biases or recall problems.

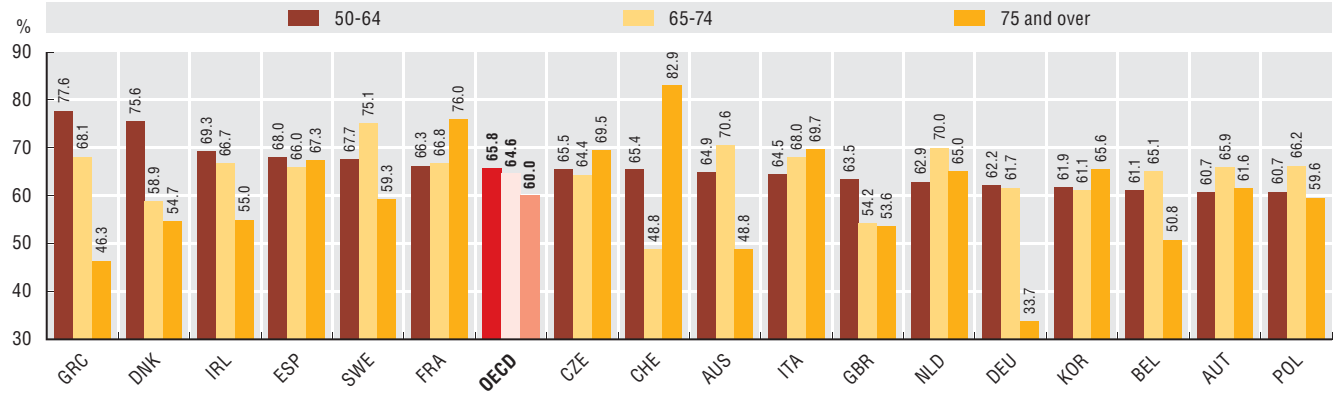
8.5.1 Population aged 50 and over reporting to be informal carers, around 2007



Source: OECD estimates based on the 2005-07 HILDA survey for Australia, the 2007 BHPS survey for the United Kingdom and the 2004-06 SHARE survey for other European countries.

StatLink http://dx.doi.org/10.1787/888932526540

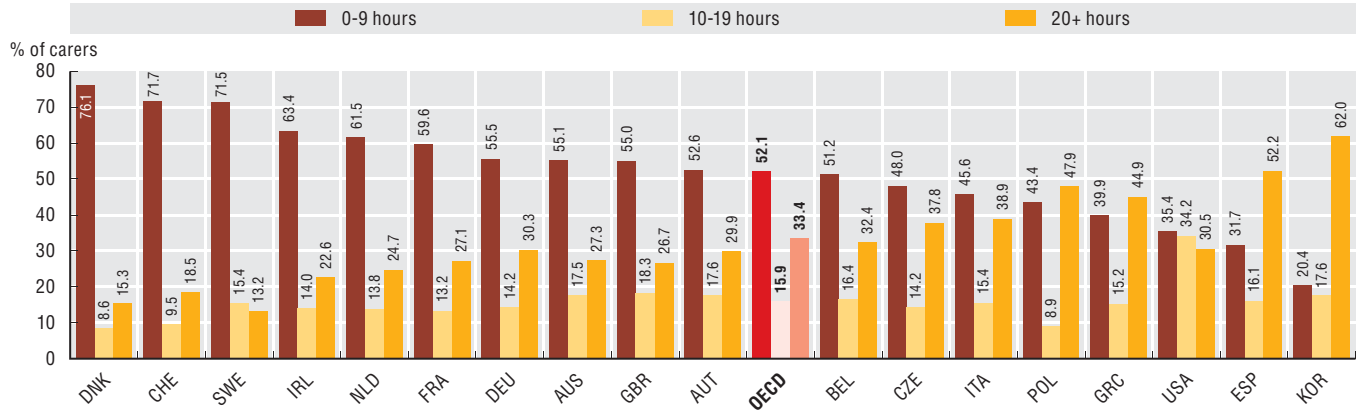
8.5.2 Share of women among all informal carers aged 50 and over, around 2007



Source: OECD estimates based on the 2005-07 HILDA survey for Australia, the 2007 BHPS survey for the United Kingdom, the 2004-06 SHARE survey for other European countries and the 2005 KLoSA survey for Korea.

StatLink http://dx.doi.org/10.1787/888932526559

8.5.3 Weekly hours of care provided by informal carers, around 2007



Source: OECD estimates based on the 2005-07 HILDA survey for Australia, the 2007 BHPS survey for the United Kingdom, the 2004-06 SHARE survey for other European countries, the 2005 KLoSA survey for Korea and the 2006 HRS survey for the United States.

StatLink http://dx.doi.org/10.1787/888932526578

8.6. Long-term care workers

The provision of long-term care (LTC) is a labour-intensive activity. The data on formal LTC workers presented in this section refer to nurses as well as personal carers (*i.e.* other LTC workers who do not qualify as nurses) who are paid to provide care and/or assistance with activities of daily living to people requiring long-term care at home or in institutions other than hospitals.

In proportion to the population aged 65 and over, the number of formal LTC workers is highest in Sweden and Norway. Portugal and Italy have the lowest number (Figure 8.6.1). In some countries such as Norway, Denmark, the Netherlands, Switzerland and New Zealand, a majority of LTC workers provide care in institutions, even though most LTC recipients may receive care at home (see Indicator 8.4 "Recipients of long-term care"). This can be explained at least partly by the fact that people receiving LTC in institutions often have more severe diseases and limitations and require more intensive care. In other countries such as Estonia, Israel, Korea and Japan, there are relatively few LTC workers in institutions, and most formal care givers provide care in the patient's home.

Most LTC workers are women and work part-time. For example, in Canada, Denmark, Korea, New Zealand and Norway, over 90% of LTC workers are women. Foreign-born workers also play an important role in LTC, although their presence is uneven across OECD countries. While Germany has very few foreign-born LTC workers, in the United States nearly one in every four care workers is foreign-born (Colombo *et al.*, 2011). In other countries, foreign-born workers represent an important share of people providing home-based services, including LTC services. This is the case, for instance, in Italy where about 70% of people providing services at home are foreign-born (Colombo *et al.*, 2011). The recruitment of foreign-born workers to provide LTC at home or in institutions can help respond to growing demand, often at a relatively low cost. But the growing inflows of LTC workers from other countries have raised some issues in certain countries, such as the management of irregular migration inflows and paid work which is undeclared for tax and social security purposes.

The mix between nurses and lower-skilled personal care workers providing LTC services vary significantly across OECD countries (Figure 8.6.2). On average, about 25% of formal LTC providers are nurses, while the other 75% are personal care workers (who may be called under different names in different countries, such as nursing aides, health assistants in institutions, home-based care assistants, etc.). In some countries (*e.g.* the United States and Switzerland), qualified nurses represent the bulk of formal LTC providers, while in others (Estonia and Korea), they represent only a very small proportion of LTC workers. This wide variation may be partly explained by institutional factors, such as public health insurance coverage in certain countries that includes some LTC services (Switzerland) or a relatively high share of LTC services provided in institutions where higher-skilled LTC workers are more likely to work (the United States). Many countries are looking at possibilities to delegate some of the tasks currently provided by nurses to lower-skilled providers to increase the supply of services and reduce costs, while ensuring that minimum standards of quality of care are maintained.

The LTC workforce still represents only a small share of total employment, but this share has increased over the past decade in many countries, along with the broadening of public protections against LTC risks and increased demand stemming from population ageing. In Japan, the number of LTC workers has grown by 9% per year since the implementation of the universal LTC insurance programme in 2000, while there was a slight decrease in total employment in the economy during that period (Figure 8.6.3). In contrast, in Sweden, the average growth rate of LTC workers between 2000 and 2009 was much more modest, at only 0.3% per year.

Given population ageing and the expected decline in the availability of family care givers, the demand for LTC workers as a share of the working population is expected to at least double by 2050. A combination of policies is needed to respond to this growing demand for formal LTC workers, including policies to improve recruitment (*e.g.* encouraging more unemployed people to consider training and working in the LTC sector); improve retention (*e.g.* enhancing pay and work conditions); and increase productivity (*e.g.* through reorganisation of work processes and more effective use of new technologies) (Colombo *et al.*, 2011).

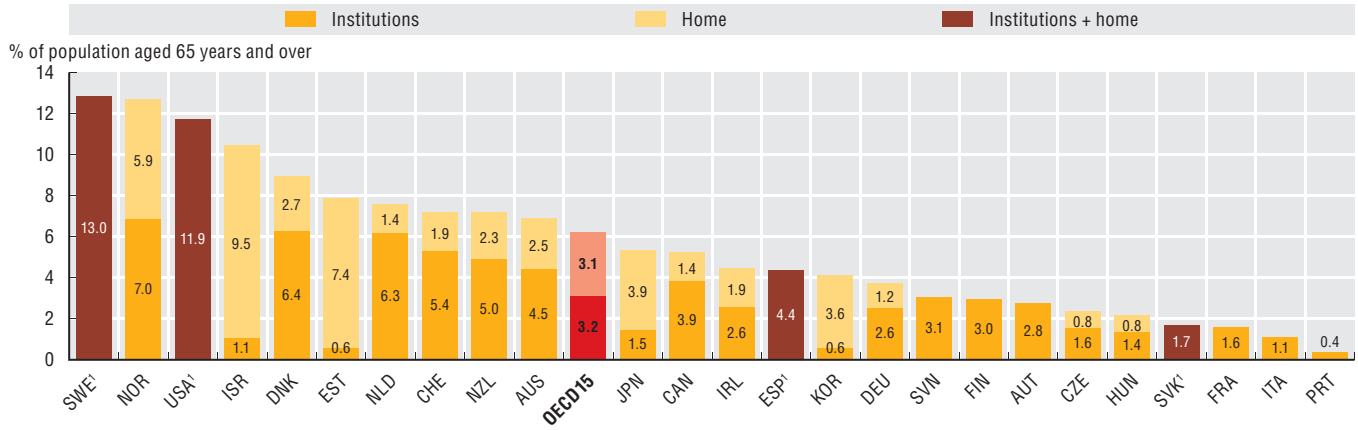
Definition and comparability

Long-term care workers are defined as paid workers who provide care at home or in institutions (outside hospitals). They include qualified nurses (see definition under Indicator 3.7 "Nurses") and personal care workers providing assistance with ADL and other personal support. Personal care workers include different categories of workers who may be called under different names in different countries. They may have some recognised qualification or not. Because personal care workers may not be part of recognised occupations, it is more difficult to collect comparable data for this category of LTC workers. LTC workers also include family members or friends who are employed under a formal contract either by the care recipient, an agency, or public and private care service companies. The numbers are expressed as head counts, not full-time equivalent.

The data for Germany exclude elderly care nurses, formal workers working predominantly in administration, and persons declared to social security systems as care givers, resulting in a substantial under-estimation. The data for Italy exclude workers in semi-residential long-term care facilities. The data for Japan involve double-counting as some workers may work in more than one home. The data for Ireland refer only to the public sector.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

8.6.1 Long-term care workers as share of population aged 65 and over, 2009 (or nearest year)

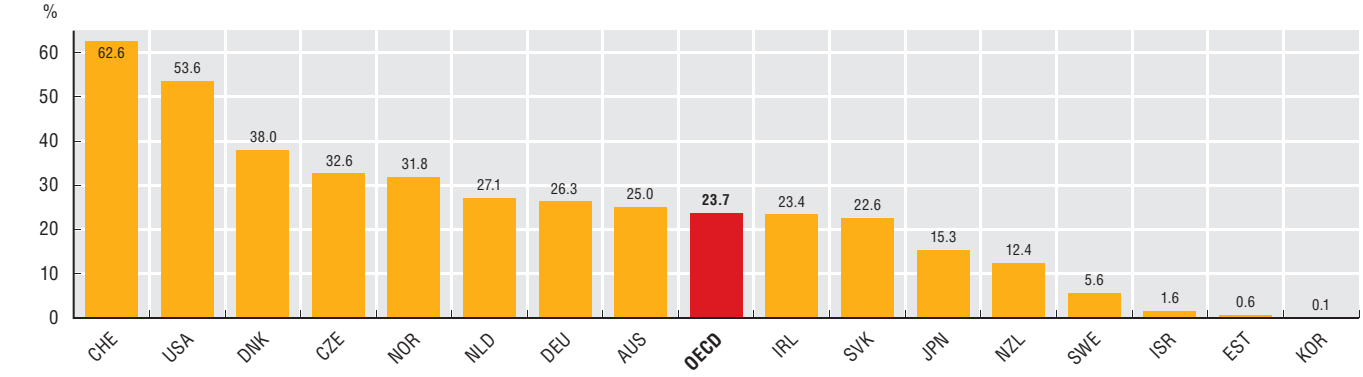


1. In Sweden, the United States, Spain and the Slovak Republic, it is not possible to distinguish LTC workers in institutions and at home.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526597

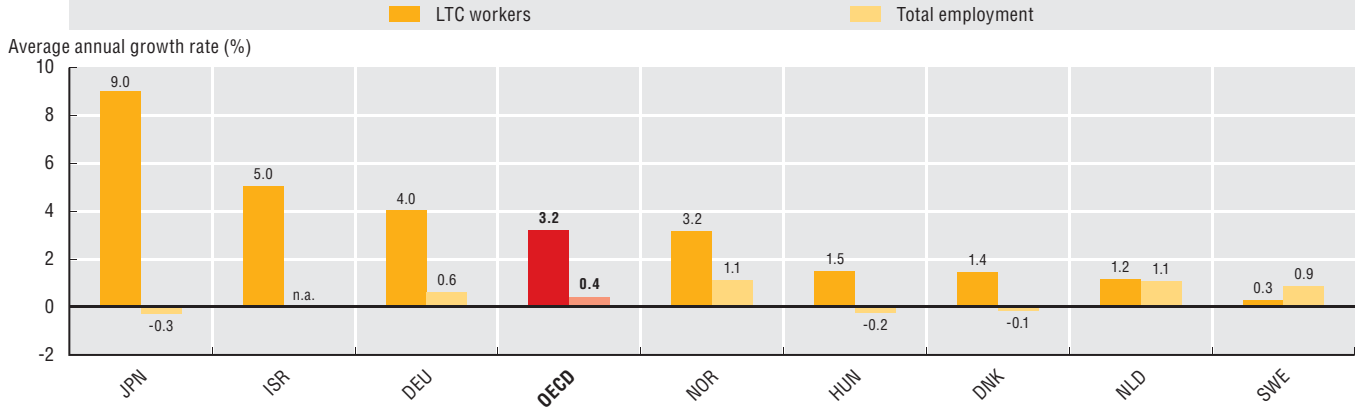
8.6.2 Share of nurses in relation to all long-term care workers (nurses and personal care workers), 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526616

8.6.3 Trends in long-term care employment and total employment, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526635

8.7. Long-term care beds in institutions and hospitals

The number of beds in long-term care (LTC) institutions and in LTC departments in hospitals provides a measure of the resources available for delivering LTC services to individuals outside of their home. Long-term care institutions refer to nursing and residential care facilities which provide accommodation and long-term care as a package. They include specially designed institutions or hospital-like settings where the predominant service component is long-term care for people with moderate to severe functional restrictions.

On average across OECD countries, there were 44 beds in LTC institutions and 6 beds in LTC departments in hospitals per 1 000 people aged 65 and over in 2009 (Figure 8.7.1). Sweden had the highest number of LTC beds in 2009, with 80 beds per 1 000 people aged 65 and over in LTC institutions, but only a small number of beds allocated for LTC in hospitals. In Italy and Poland, there were relatively few beds in LTC institutions or in hospitals per 1 000 people aged 65 years and over in 2009. Most LTC services in these two countries are provided at home by informal care givers (see Indicator 8.5 "Informal carers").

While most countries report very few beds allocated for LTC in hospitals, some countries continue to use hospital beds quite extensively for LTC purposes. In Korea, there are nearly as many LTC beds in hospitals as there are in dedicated LTC institutions. However, the number of beds in LTC institutions has increased in recent years, especially following the introduction of Korea's public long-term care insurance programme in 2008. In Japan, there is also a fairly large number of hospital beds that have traditionally been used for long-term care, but there have also been recent increases in the number of beds in LTC institutions. Among European countries, Finland and Ireland maintain a fairly large number of LTC beds in hospitals. In Finland, local governments are responsible for managing both health and long-term care services, and have traditionally used hospitals to provide at least some long-term care. In both Finland and Ireland, there has been however a recent rise in the number of beds in LTC institutions which has been accompanied by a reduction in LTC beds in hospitals.

Many other OECD countries have developed the capacity of LTC institutions to receive LTC patients once they no longer need acute care in hospitals, in order to free up costly hospital beds. The number of LTC beds in institutions has increased more rapidly than the number of LTC beds in hospitals in most countries (Figure 8.7.2). It has grown particularly quickly in Korea and Spain, although it started from a relatively low level and still remains well below the OECD average. In Australia also, the number of beds in institutions has increased rapidly over the past ten years. In Sweden, both the number of LTC beds in hospitals and in LTC institutions has declined slightly over the past decade, although the capacity still remains the highest of all countries. Sweden has implemented various measures in recent years to promote home-based care, including the use of cash benefits to promote home living and the expansion of community-based LTC (Colombo *et al.*, 2011).

Providing LTC in institutions is generally more expensive than home-based care, if only because of the additional cost of board and lodging. However, depending on individual circumstances, a move to LTC institutions may be the most appropriate and cost-effective option, for example for people living alone and requiring round the clock care and supervision (Wiener *et al.*, 2009) or people living in remote areas with limited home-care support.

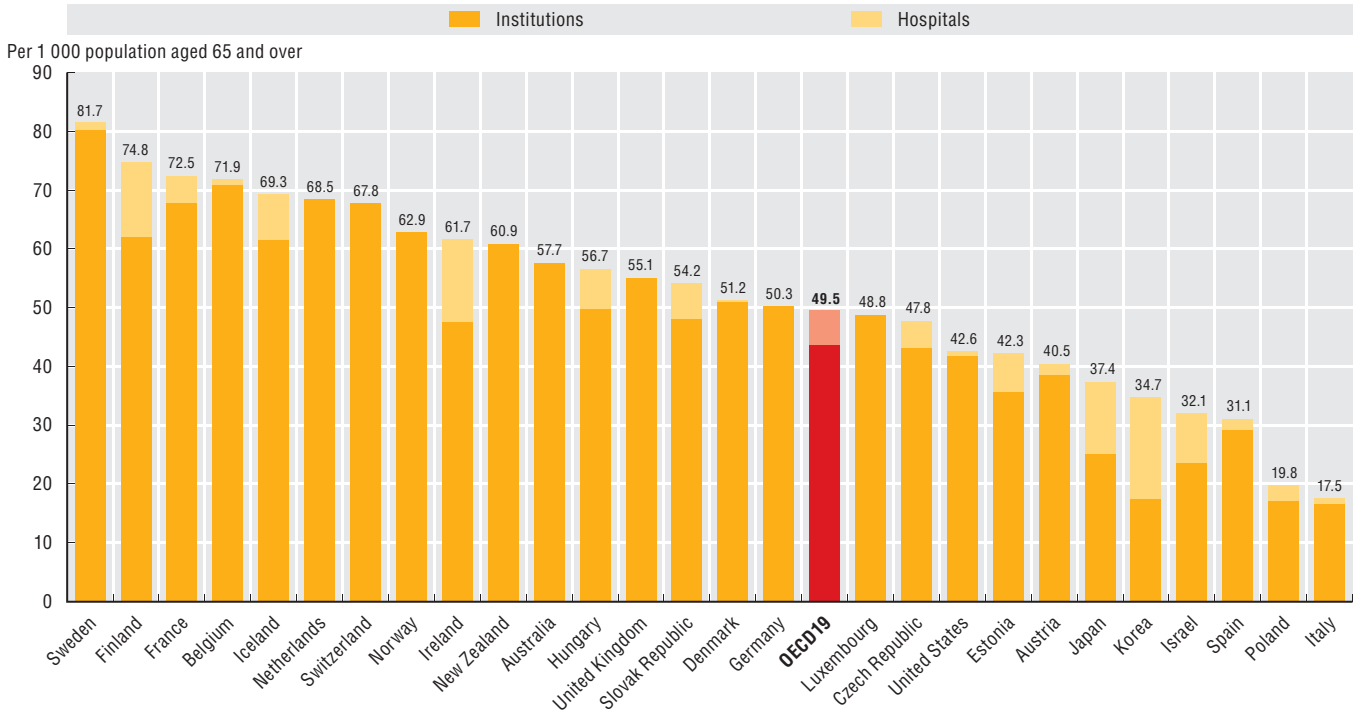
Definition and comparability

Long-term care institutions refer to nursing and residential care facilities which provide accommodation and long-term care as a package. Beds in adapted living arrangements for persons who require help while guaranteeing a high degree of autonomy and self control are not included. For international comparisons, beds in rehabilitation centers are also not included.

However, there are variations in data coverage across countries. Several countries only include beds in publicly-funded LTC institutions, while others also include private institutions (both profit and non-for-profit). Some countries also include beds in treatment centers for addicted people, psychiatric units of general or specialised hospitals, and rehabilitation centers.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

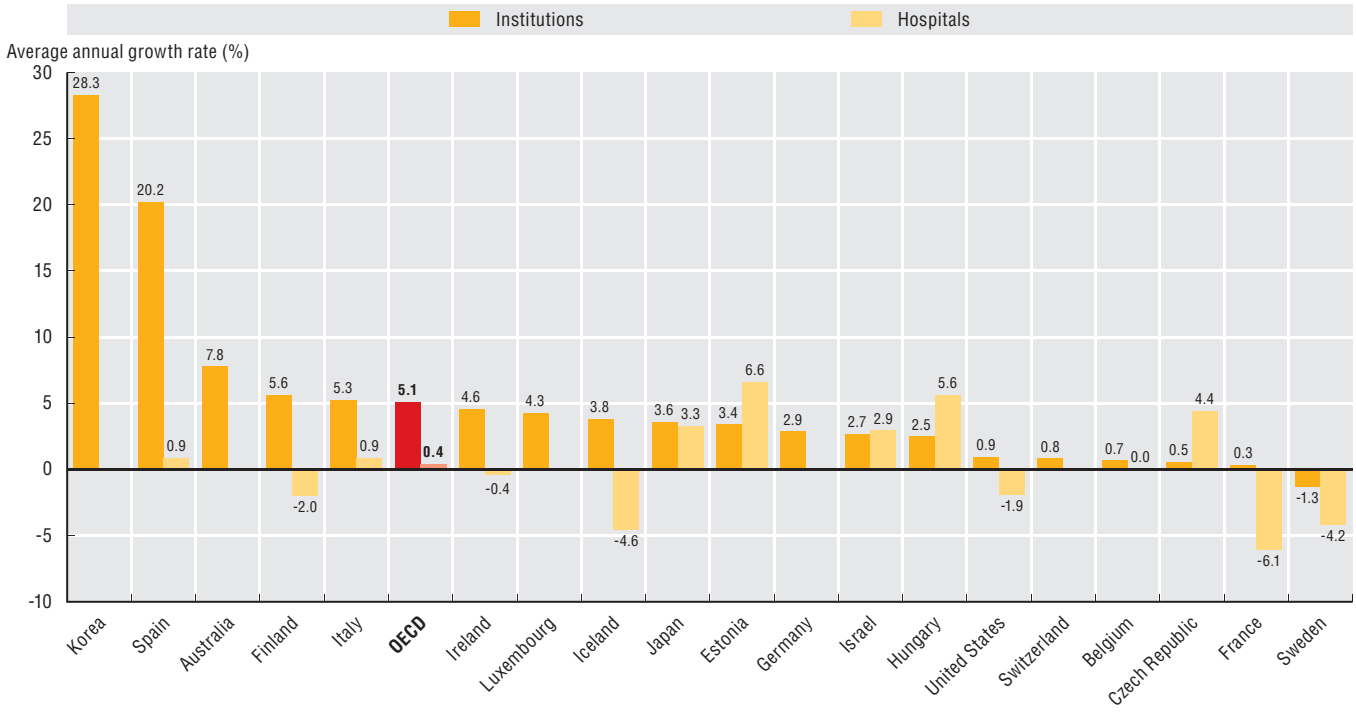
8.7.1 Long-term care beds in institutions and hospitals, per 1 000 population aged 65 and over, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526654

8.7.2 Trends in long-term care beds in institutions and in hospitals, 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526673

8.8. Long-term care expenditure

Long-term care (LTC) expenditure has risen over the past few decades in most OECD countries and is expected to rise further in the coming years due mainly to population ageing and a growing number of people requiring health and social services on an ongoing basis. LTC cuts across the domains of both health and social care. The component of LTC that is considered under the health boundary for international comparisons comprises continuous episodes of care with a dominant characteristic related to medical or personal care (*i.e.* support for basic activities of daily living such as eating, dressing and washing). In contrast, spending on LTC services or programmes associated with helping people with disabilities to live as independently as possible (*i.e.* support for residential services or help with instrumental activities of dailing living, such as preparing meals or managing personal finances) are considered outside the scope of medical or personal care and represent the social component of LTC spending.

A significant share of LTC services is funded from public sources. In addition, publicly-funded LTC expenditure is more suitable for international comparisons as there is significant variation in the reporting of privately-funded LTC expenditure across OECD countries. Total public spending on LTC (health and social) accounted for 1.4% of GDP on average across OECD countries in 2009 (Figure 8.8.1). The Netherlands and Sweden allocated more than 3.5% of GDP to public spending on long-term care, while the Czech Republic, Estonia, Hungary, Korea, Mexico, Poland, Portugal and the Slovak Republic allocated less than 0.5% of their GDP. This significant variation reflects both differences in population structure and in the development of formal long-term care systems, as opposed to more informal arrangements based mainly on care giving provided by unpaid family members.

Keeping in mind the underreporting of privately-funded LTC expenditure, it plays a relatively larger role in Switzerland (about 1.3% of GDP) and in the United States (about 0.4% of GDP).

The international boundaries between health and social LTC spending are still not fully applied across all countries, with some countries reporting particular components of LTC as part of health care, while others view it as a social spending. As a result, there are important variations in the level of the health and social-related public LTC spending among certain OECD countries. The Netherlands, Denmark and Norway have a public spending on health LTC of over 2% of GDP, with the average being close to 1% of GDP across OECD countries. Portugal, Mexico and the Slovak Republic spend less than 0.1% of GDP on the health part of public LTC. Regarding the social part of public LTC expenditure, Sweden has the highest share, reaching 3% of GDP, much greater than the OECD average of 0.6%. In contrast, Poland, Luxembourg, Spain, New Zealand and Korea report less than 0.1% of GDP on social public LTC spending.

Resources allocated by government to LTC have been growing rapidly in recent years in several countries and are a significant factor in the overall growth of health expenditure (Figure 8.8.2). Korea and Spain recently implemented measures to expand the comprehensiveness of their LTC systems, showing the highest public spending growth rate in this area since 2000. For more than half of OECD countries, the health component of public LTC expenditure has grown faster than overall public health expenditure (they fall above the 45° line in Figure 8.8.3). In other countries however, such as Australia, Canada, Finland, Sweden and the United States, the health part of public LTC spending has grown slower than public health expenditure.

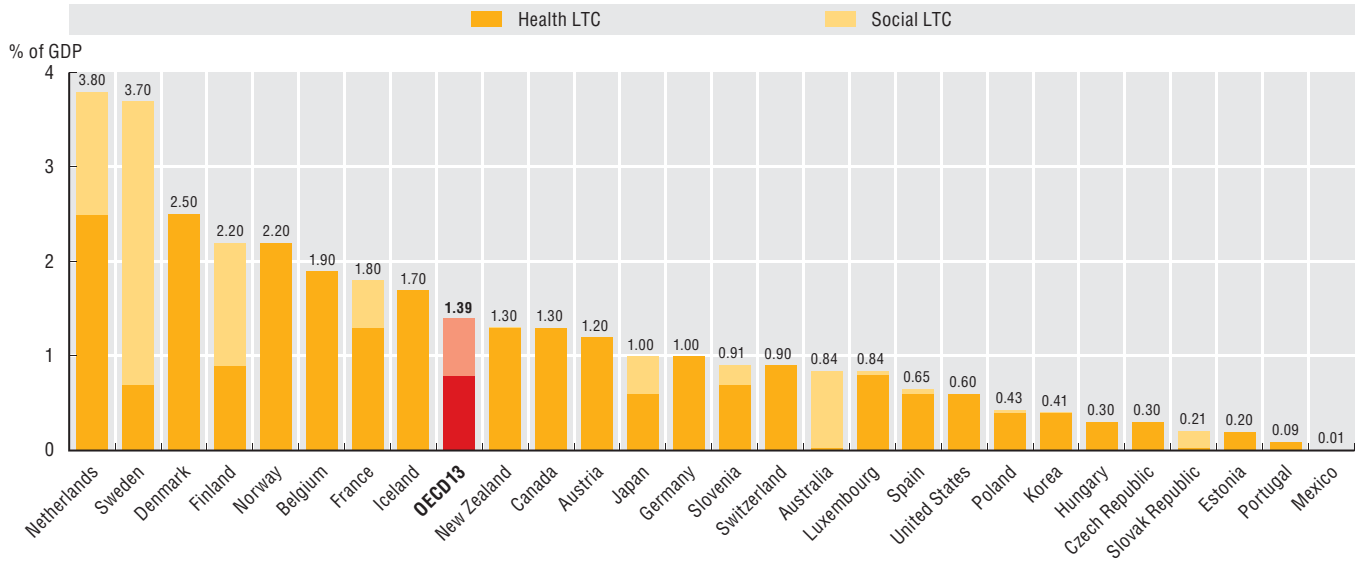
Projection scenarios suggest that public resources allocated to LTC as a share of GDP will at least double by 2050. As a result, the challenge will be to strike the right balance between providing appropriate LTC protection, while ensuring that this protection is fiscally sustainable in the long run (Colombo *et al.*, 2011).

Definition and comparability

LTC spending comprises both health and social support services to people with chronic conditions and disabilities needing care on an ongoing basis. Based on the agreed-upon definitions in the System of Health Accounts (SHA), the health component of LTC spending relates to health care provided to patients with chronic impairments and assistance with activities of daily living (ADL, such as eating, washing and dressing). It includes palliative care and health care provided in LTC institutions, and health and personal care services (for ADL) received at home. LTC social expenditure includes support for residential services in assisted living arrangements and other kinds of protected housing for persons with functional limitations; assistance with instrumental activities of daily living (IADL, such as doing groceries, preparing meals, managing personal finances and other services of housekeeping), social services of day care such as social activities for dependent persons; transport to and from day-care facilities or similar social services. Countries' reporting practices in the allocation of LTC spending between the health and social components may differ from the agreed-upon SHA definition. According to the SHA, only the health part of LTC expenditure is included in the overall health expenditure as reported under Chapter 7.

In Figures 8.8.2 and 8.8.3, public LTC expenditure refers only to the health component of LTC.

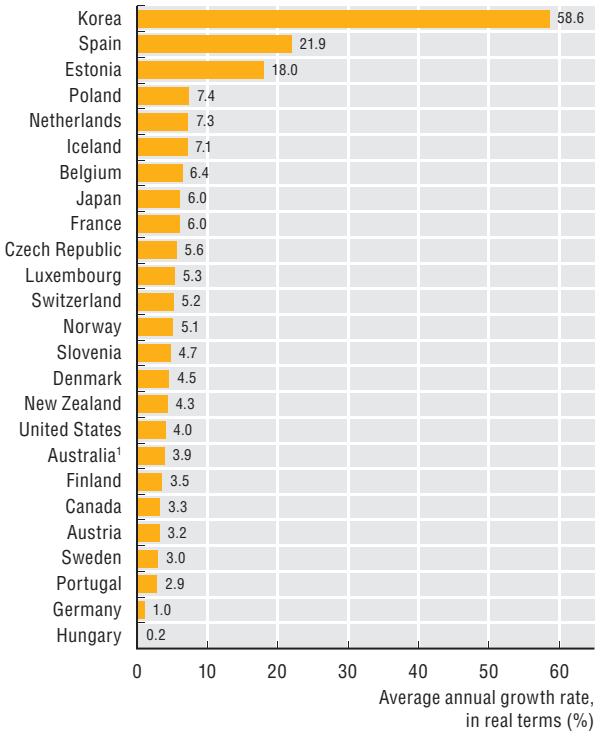
8.8.1 Long-term care public expenditure (health and social components), as share of GDP, 2009 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526692

8.8.2 Growth in public expenditure on long-term care (health), 2000-09 (or nearest year)

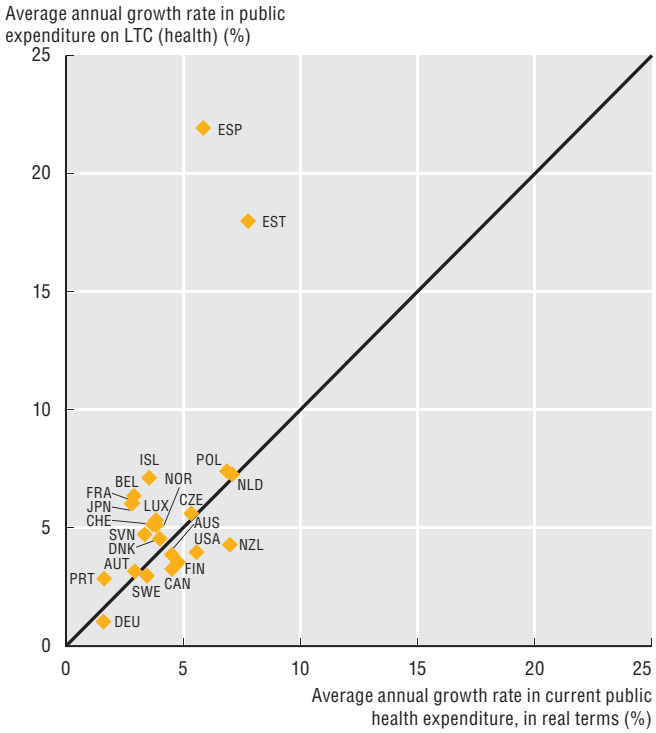


1. LTC in hospitals only.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526711

8.8.3 Growth in public expenditure on health and long-term care (health), 2000-09 (or nearest year)



Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526730

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ANNEX A

Additional Information on Demographic and Economic Context, Health System Characteristics, and Health Expenditure and Financing

Table A.1. **Total population, mid-year, thousands, 1960 to 2009**

	1960	1970	1980	1990	2000	2009
Australia	10 275	12 507	14 695	17 065	19 153	21 955
Austria	7 048	7 467	7 549	7 678	8 012	8 363
Belgium	9 154	9 656	9 859	9 967	10 251	10 797
Canada	18 180	21 747	24 516	27 698	30 689	33 368
Chile	7 643	9 570	11 174	13 179	15 398	16 929
Czech Republic	9 660	9 805	10 327	10 363	10 273	10 492
Denmark	4 580	4 929	5 123	5 141	5 337	5 519
Estonia	1 216	1 365	1 473	1 568	1 370	1 340
Finland	4 430	4 606	4 780	4 986	5 176	5 339
France	45 684	50 772	53 880	56 709	59 062	62 636
Germany[1]	55 585	60 651	61 566	63 254 |	82 212	81 902
Greece	8 327	8 793	9 643	10 161	10 918	11 283
Hungary	9 984	10 338	10 711	10 374	10 211	10 023
Iceland	176	204	228	255	281	319
Ireland	2 832	2 950	3 401	3 506	3 790	4 459
Israel[2]	2 150	2 958	3 878	4 660	6 289	7 485
Italy	50 200	53 822	56 434	56 719	56 942	58 947
Japan	93 419	103 721	117 061	123 613	126 927	127 509
Korea	25 012	32 241	38 124	42 869	47 008	48 747
Luxembourg	314	340	364	382	436	494
Mexico	37 877	50 785	67 384	83 971	98 439	107 551
Netherlands	11 487	13 039	14 150	14 952	15 926	16 418
New Zealand	2 382	2 828	3 170	3 390	3 858	4 317
Norway	3 581	3 876	4 086	4 242	4 491	4 829
Poland	29 561	32 526	35 578	38 031	38 256	38 153
Portugal	8 858	8 680	9 766	9 983	10 226	10 630
Slovak Republic	3 994	4 529	4 984	5 298	5 401	5 418
Slovenia	1 580	1 670	1 832	1 927	1 985	2 020
Spain	30 455	33 753	37 527	38 851	40 264	45 930
Sweden	7 485	8 043	8 311	8 559	8 872	9 301
Switzerland	5 328	6 181	6 319	6 712	7 184	7 744
Turkey	27 438	35 294	44 522	56 104	67 393	72 484
United Kingdom	52 371	55 633	56 331	57 238	58 888	60 931
United States	180 671	205 052	227 225	249 623	282 166	306 656
OECD (total)	**768 937**	**870 331**	**965 971**	**1 049 028**	**1 153 084**	**1 220 287**

| Break in series.

1. Note that population figures for Germany prior to 1991 refer to West Germany.
2. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526749

Table A.2. **Share of the population aged 65 and over, 1960 to 2009**

	1960	1970	1980	1990	2000	2009
Australia	8.5	8.3	9.6	11.1	12.4	13.3
Austria	12.2	14.1	15.4	14.9	15.4	17.5
Belgium	12.0	13.4	14.3	14.9	16.8	17.1
Canada	7.5	7.9	9.4	11.3	12.6	13.9
Chile	4.8	5.0	5.5	6.1	7.2	8.8
Czech Republic	9.6	12.1	13.5	12.5	13.8	15.0
Denmark	10.6	12.3	14.4	15.6	14.8	16.1
Estonia	10.5	11.7	12.5	11.6	15.1	17.0
Finland	7.3	9.2	12.0	13.4	14.9	16.9
France	11.6	12.9	13.9	14.0	16.1	16.7
Germany	10.8	13.2	15.5	15.3	16.4	20.5
Greece	8.1	11.1	13.1	13.8	16.6	18.8
Hungary	9.0	11.6	13.4	13.3	15.1	16.5
Iceland	8.1	8.8	9.9	10.6	11.6	11.8
Ireland	11.1	11.1	10.7	11.4	11.2	11.1
Israel[1]	5.0	6.7	8.6	9.1	9.8	9.8
Italy	9.3	10.9	13.1	14.9	18.3	20.4
Japan	5.7	7.1	9.1	12.1	17.4	22.7
Korea	2.9	3.1	3.8	5.1	7.2	10.7
Luxembourg	10.8	12.5	13.6	13.4	14.1	14.0
Mexico	3.4	4.6	4.3	4.1	4.7	5.8
Netherlands	9.0	10.2	11.5	12.8	13.6	15.2
New Zealand	8.7	8.4	9.7	11.2	11.8	12.8
Norway	11.0	12.9	14.8	16.3	15.2	14.8
Poland	5.8	8.2	10.1	10.1	12.2	13.5
Portugal	7.9	9.4	11.3	13.4	16.2	17.8
Slovak Republic	6.9	9.2	10.5	10.3	11.4	12.2
Slovenia	7.8	9.9	11.4	11.1	14.0	16.2
Spain	8.2	9.6	11.2	13.6	16.8	16.7
Sweden	11.8	13.7	16.3	17.8	17.3	17.9
Switzerland	10.2	11.4	13.8	14.6	15.3	17.2
Turkey	3.6	4.4	4.7	4.4	5.4	7.6
United Kingdom	11.7	13.0	15.0	15.7	15.8	15.8
United States	9.2	9.8	11.3	12.5	12.4	13.0
OECD	**8.5**	**9.9**	**11.4**	**12.1**	**13.5**	**14.9**

1. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526768

Table A.3. **GDP per capita in 2009 and average annual growth rates, 1970 to 2009**

	GDP per capita in USD PPP	Average annual growth rate (in real terms)			
	2009	1970-80	1980-90	1990-2000	2000-09
Australia[1]	39 409	1.3	1.4	2.4	1.7
Austria	38 823	3.5	2.0	2.1	1.0
Belgium	36 287	3.2	1.9	1.9	0.7
Canada	38 230	2.8	1.6	1.9	0.8
Chile	14 131	. .	. .	4.8	2.5
Czech Republic	25 568	. .	. .	0.3	3.0
Denmark	37 706	1.9	2.0	2.2	0.1
Estonia	19 882	. .	. .	. .	4.2
Finland	35 237	3.4	2.6	1.7	1.3
France	33 763	3.0	1.9	1.6	0.5
Germany	36 328	2.7	2.1	0.3	0.6
Greece[2]	28 251	3.6	0.2	1.6	3.9
Hungary	20 280	. .	. .	. .	2.2
Iceland	36 655	5.2	1.6	1.5	1.4
Ireland	39 652	3.3	3.3	6.3	1.1
Israel[3]	27 495	2.4	1.9	2.8	1.0
Italy	33 105	3.3	2.4	1.5	–0.2
Japan[1]	33 854	3.2	4.1	0.9	1.1
Korea	27 150	7.2	8.4	5.6	3.5
Luxembourg	85 521	1.9	4.5	3.6	1.6
Mexico	14 322	3.6	–0.4	1.8	0.4
Netherlands	41 085	2.3	1.7	2.5	1.6[4]
New Zealand	28 985	0.6	1.3	1.7	1.4
Norway	55 730	4.1	2.1	3.1	0.9
Poland	18 929	. .	. .	3.7	3.9
Portugal[1]	24 953	3.5	3.0	2.7	0.5
Slovak Republic	22 868	. .	. .	. .	4.8
Slovenia	27 829	. .	. .	1.6	2.7
Spain	32 254	2.5	2.6	2.4	0.8
Sweden	37 155	1.6	1.9	1.7	1.1
Switzerland	45 150	1.0	1.6	0.4	0.7
Turkey[1]	14 848	1.7	2.8	1.8	3.6
United Kingdom	35 656	1.8	2.6	2.2	1.0
United States	45 797	2.2	2.3	2.2	0.6
OECD	**33 320**	**2.8**	**2.3**	**2.3**	**1.6**

1. Most recent year available is 2008.
2. Most recent year available is 2007.
3. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.
4. Most recent year used is 2008.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526787

Table A.4. **Basic primary health insurance coverage of selected functions of care, and share of typical costs covered, 2008-09**

	Acute inpatient care	Outpatient primary care and specialist contacts	Pharmaceuticals	Dental care
Australia	Covered, 100%	Covered, 76-99%	Covered, 76-99%	Not covered
Austria	Covered, 76-99%	Covered, 100%	Covered, 76-99%	Covered, 100%
Belgium	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%
Canada	Covered, 100%	Covered, 100%	Covered, 51-75%	Not covered
Czech Republic	Covered, 76-99%	Covered, 76-99%	Covered, 51-75%	Covered, 1-50%
Denmark	Covered, 100%	Covered, 100%	Covered, 51-75%	Covered, 1-50%
Finland	Covered, 76-99%	Covered, 76-99%	Covered, 51-75%	Covered, 76-99%
France	Covered, 76-99%	Covered, 51-75%	Covered, 51-75%	Covered, 1-50%
Germany	Covered, 100%	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%
Greece	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%	Covered, 1-50%
Hungary	Covered, 100%	Covered, 100%	Covered, 76-99%	Covered, 1-50%
Iceland	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%
Ireland	Covered, 100%	Covered, 100%	. .	Not covered
Italy	Covered, 100%	Covered, 76-99%	Covered, 100%	Covered, 1-50%
Japan	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%
Korea	Covered, 76-99%	Covered, 51-75%	Covered, 51-75%	Covered, 51-75%
Luxembourg	Covered, 76-99%	Covered, 76-99%	Covered, 76-99%	Covered, 51-75%
Mexico	Covered, 100%	Covered, 100%	Covered, 100%	Covered, 100%
Netherlands	Covered, 100%	Covered, 100%	Covered, 100%	Covered, 1-50%
New Zealand	Covered, 100%	Covered, 51-75%	Covered, 76-99%	Not covered
Norway	Covered, 100%	Covered, 76-99%	Covered, 76-99%	Not covered
Poland	Covered, 100%	Covered, 100%	Covered, 51-75%	Covered, 100%
Portugal	Covered, 100%	Covered, 100%	Covered, 1-50%	Covered, 1-50%
Slovak Republic	Covered, 100%	Covered, 100%	Covered, 76-99%	Covered, 51-75%
Spain	Covered, 100%	Covered, 100%	Covered, 76-99%	Covered, 100%
Sweden	Covered, 76-99%	Covered, 76-99%	Covered, 51-75%	Covered, 1-50%
Switzerland	Covered, 100%	Covered, 76-99%	Covered, 76-99%	Not covered
Turkey	Covered, 100%	Covered, 76-99%	Covered, 76-99%	Covered, 100%
United Kingdom	Covered, 100%	Covered, 100%	Covered, 100%	Covered, 76-99%

Source: OECD Survey on Health System Characteristics 2008-2009 and OECD estimates.

StatLink http://dx.doi.org/10.1787/888932526806

Table A.5. **Predominant mode of payment for physicians in OECD countries**

	Primary care physicians	Outpatient specialists	Inpatient specialists
Australia	Fee-for-service	Fee-for-service	Salary
Austria	Fee-for-service/capitation	Fee-for-service	Salary
Belgium	Fee-for-service	Fee-for-service	. .
Canada	Fee-for-service	Fee-for-service	Fee-for-service
Czech Republic	Fee-for-service/capitation	Fee-for-service/salary	Salary
Denmark	Fee-for-service/capitation	Salary	Salary
Finland	Salary	Salary	Salary
France	Fee-for-service	Fee-for-service	Salary
Germany	Fee-for-service	Fee-for-service	Salary
Greece	Salary	Fee-for-service/salary	Salary
Hungary	Capitation	Salary	. .
Iceland	Salary	Fee-for-service	Salary
Ireland	Capitation/fee-for-service	Fee-for-service	Salary
Italy	Capitation	Salary	Salary
Japan	Fee-for-service	Fee-for-service	Fee-for-service
Korea	Fee-for-service	Fee-for-service	. .
Luxembourg	Fee-for-service	Fee-for-service	. .
Mexico	Salary	Salary	Salary
Netherlands	Capitation	Fee-for-service	Fee-for-service
New Zealand	Fee-for-service/salary	Fee-for-service/salary	Fee-for-service/salary
Norway	Fee-for-service/capitation	Fee-for-service/salary	Salary
Poland	Capitation	Fee-for-service	. .
Portugal	Salary	Salary	. .
Slovak Republic	Capitation	. .	Salary
Spain	Salary/Capitation	Salary	Salary
Sweden	Salary	Salary	. .
Switzerland	Fee-for-service	Fee-for-service	. .
Turkey	Fee-for-service/salary	Fee-for-service/salary	Fee-for-service/salary
United Kingdom	Salary/capitation/fee-for-service	Salary	Salary
United States	Salary/capitation/fee-for-service	Fee-for-service	. .

Source: OECD Survey of Health System Characteristics 2008-2009.

StatLink http://dx.doi.org/10.1787/888932526825

Table A.6. **Total expenditure on health per capita in 2009 and average annual growth rates, 2000 to 2009**

	Total health expenditure per capita in USD PPP	Annual growth rate (in real terms)[1]				
	2009	2005/06	2006/07	2007/08	2008/09	Average over period 2000-09 or most recent year
Australia[2]	3 445	2.6	2.8	1.5	. .	2.8
Austria	4 289	1.8	3.3	2.7	2.2	2.2
Belgium[3]	3 946	–2.6	2.8	4.5	4.2	4.0
Canada	4 363	3.2	1.9	2.5	7.4	3.7
Chile	1 186	–0.8	7.9	11.6	9.0	5.2
Czech Republic	2 108	2.4	2.4	6.8	10.4	5.7
Denmark	4 348	4.7	1.8	0.9	6.0	3.3
Estonia	1 393	10.6	11.8	10.8	–1.1	7.5
Finland	3 226	3.0	1.1	4.3	0.1	4.0
France	3 978	0.9	1.5	0.4	2.7	2.2
Germany	4 218	2.1	1.6	3.2	4.0	2.0
Greece[4]	2 724	5.3	4.0	. .	. .	6.9
Hungary	1 511	1.0	–7.0	–2.3	–3.6	2.8
Iceland	3 538	–1.6	3.1	–0.9	–1.4	1.6
Ireland	3 781	1.6	5.1	9.0	–1.0	6.1
Israel[5]	2 165	0.9	3.0	4.7	0.1	1.5
Italy	3 137	2.3	–2.9	3.6	–0.8	1.6
Japan[2]	2 878	1.7	2.4	2.6	. .	2.4
Korea	1 879	11.9	9.2	4.5	7.2	8.6
Luxembourg	4 808	–0.3	–4.9	–6.9	8.0	0.7
Mexico	918	0.8	4.2	1.7	2.4	3.1
Netherlands	4 914	2.1	3.3	3.7	. .	4.4[6]
New Zealand	2 983	5.9	–1.5	6.2	7.4	4.8
Norway	5 352	–3.5	4.4	–3.4	8.4	2.4
Poland	1 394	6.1	10.8	14.5	6.8	7.3
Portugal[2]	2 508	–2.0	1.4	0.4	. .	1.5
Slovak Republic	2 084	12.9	16.5	9.2	8.2	10.9
Slovenia	2 579	4.0	0.3	11.0	1.7	3.9
Spain	3 067	3.3	3.2	4.9	1.5	4.0
Sweden	3 722	2.4	2.2	2.1	1.8	3.4
Switzerland	5 144	–1.3	1.1	2.0	2.8	2.0
Turkey[2]	902	12.6	7.4	4.5	. .	6.3
United Kingdom	3 487	5.1	1.4	3.6	5.2	4.8
United States	7 960	2.2	2.2	1.6	2.2	3.3
OECD	**3 233**	**3.0**	**3.2**	**3.8**	**3.6**	**4.0**

1. Using national currency units at 2000 GDP price level.
2. Most recent year available is 2008.
3. Excluding investments.
4. Most recent year available is 2007.
5. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.
6. Most recent year used is 2008.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526844

Table A.7. **Public expenditure on health per capita in 2009 and average annual growth rates, 2000 to 2009**

	Public expenditure on health per capita in USD PPP	Annual growth rate (in real terms)[1]				
	2009	2005/06	2006/07	2007/08	2008/09	Average over period 2000-09 or most recent year
Australia[2]	2 342	2.1	4.2	2.3	. .	3.0
Austria	3 331	1.6	3.9	3.7	2.8	2.3
Belgium[3]	2 964	–5.3	2.3	6.6	4.4	4.1
Canada	3 081	2.6	2.5	2.9	7.6	3.7
Chile	562	4.4	10.6	13.6	17.4	4.1
Czech Republic	1 769	1.7	0.6	3.4	12.3	4.9
Denmark	3 698	4.9	1.5	1.3	6.5	3.5
Estonia	1 049	5.6	15.3	14.1	–4.3	7.2
Finland	2 410	2.2	0.5	4.4	0.4	4.6
France	3 100	0.8	1.0	–0.4	3.1	2.0
Germany	3 242	1.8	1.6	3.4	4.5	1.5
Greece[4]	1 644	8.7	1.2	. .	. .	7.0
Hungary	1 053	1.3	–9.9	–1.4	–5.4	2.7
Iceland	2 901	–0.9	3.8	–0.8	–2.1	1.7
Ireland	2 836	1.4	5.2	8.8	–3.2	6.1
Israel[5]	1 266	0.5	1.8	4.9	0.2	0.8
Italy	2 443	2.8	–3.0	4.9	–0.4	2.4
Japan[2]	2 325	–1.0	3.6	3.2	. .	2.4
Korea	1 093	17.0	10.2	4.7	11.5	10.8
Luxembourg	4 040	0.0	–6.0	–7.0	8.0	0.6
Mexico	443	1.2	4.6	5.1	5.3	3.5
Netherlands	3 884	27.7	2.7	3.8	. .	6.7[6]
New Zealand	2 400	6.5	1.4	6.8	7.7	5.2
Norway	4 501	–3.2	4.8	–3.1	8.1	2.6
Poland	1 006	7.0	12.3	16.7	6.7	7.7
Portugal[2]	1 633	–3.4	0.8	–0.6	. .	1.3
Slovak Republic	1 369	3.7	14.0	10.7	4.9	7.2
Slovenia	1 893	4.2	0.3	12.9	1.6	3.9
Spain	2 259	4.4	3.5	6.5	2.9	4.3
Sweden	3 033	2.4	2.5	2.3	1.8	2.9
Switzerland	3 072	–1.8	1.1	2.7	3.1	2.8
Turkey[2]	659	13.4	6.6	12.4	. .	8.3
United Kingdom	2 935	4.3	1.4	4.9	7.5	5.6
United States	3 795	4.1	2.7	3.6	5.8	4.5
OECD	**2 354**	**3.6**	**3.2**	**4.8**	**4.2**	**4.2**

1. Using national currency units at 2000 GDP price level.
2. Most recent year available is 2008.
3. Excluding investments.
4. Most recent year available is 2007.
5. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.
6. Most recent year used is 2008.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932526863

Table A.8. **Total expenditure on health, percentage of GDP, 1980 to 2009**

	1980	1990	1995	2000	2005	2007	2008	2009
Australia	6.1	6.7	7.2 |	8.0	8.4	8.5	8.7	. .
Austria	7.4 |	8.3	9.5	9.9	10.4	10.3	10.4	11.0
Belgium[1]	6.3	7.2	7.6	8.1 |	10.1	9.7e	10.1	10.9
Brazil	. .	. .	6.7	7.2	8.2	8.4	8.4	9.0
Canada	7.0	8.9 |	9.0	8.8	9.8	10.0	10.3	11.4
Chile	. .	. .	5.3	6.6	6.9	6.9	7.5	8.4e
China	. .	. .	3.5	4.6	4.7	4.2	4.3	4.6
Czech Republic		4.7 |	7.0 |	6.5 |	7.2	6.8	7.1	8.2
Denmark	8.9	8.3	8.1	8.7 |	9.8	10.0	10.3	11.5
Estonia	. .	. .	. .	5.3	5.0	5.2	6.1	7.0
Finland	6.3	7.7 |	7.9	7.2	8.4	8.1	8.4	9.2
France	7.0	8.4 |	10.4	10.1	11.1	11.0	11.1	11.8
Germany	8.4	8.3 |	10.1	10.3	10.7	10.5	10.7	11.6
Greece	5.9	6.6	8.6 |	7.9	9.6	9.6	. .	. .
Hungary	. .	7.0 1991	7.3 |	7.0 |	8.3	7.5	7.2	7.4
Iceland	6.3	7.8	8.2	9.5 |	9.4	9.1	9.1	9.7
India	. .	. .	4.3	4.6	4.0	4.1	4.2	4.2
Indonesia	. .	. .	1.8	2.0	2.1	2.5	2.3	2.4
Ireland	8.2 |	6.1	6.6	6.1	7.6	7.7	8.8	9.5
Israel[2]	7.7	7.1	7.6	7.5	7.8	7.6	7.7	7.9
Italy	. .	7.7	7.3	8.1	8.9	8.7	9.0	9.5
Japan	6.4	5.9 |	6.9	7.7	8.2	8.2	8.5	. .
Korea	3.7	4.0	3.8	4.5	5.7	6.3	6.5	6.9
Luxembourg	5.2	5.4 |	5.6 |	7.5 |	7.9	7.1	6.8	7.8
Mexico	. .	4.4	5.1 |	5.1	5.9	5.8	5.8	6.4
Netherlands	7.4	8.0	8.3	8.0 |	9.8	9.7	9.9 |	12.0e
New Zealand	5.8	6.8	7.1	7.6 |	8.7	8.8	9.6	10.3
Norway	7.0	7.6	7.9 |	8.4	9.1	8.9	8.6e	9.6e
Poland	. .	4.8	5.5	5.5 |	6.2	6.4	7.0	7.4
Portugal	5.1	5.7 |	7.5 |	9.3	10.4	10.0	10.1	. .
Russian Federation	. .	. .	5.3	5.4	5.2	5.4	4.8	5.4
Slovak Republic	. .	. .	5.8 1997	5.5 |	7.0	7.7	8.0	9.1
Slovenia	. .	. .	7.5	8.3	8.4	7.8	8.4	9.3
South Africa	. .	. .	7.5	8.5	8.8	8.4	8.2	8.5
Spain	5.3	6.5	7.4 |	7.2	8.3	8.5	9.0	9.5
Sweden	8.9	8.2 |	8.0	8.2 |	9.1	8.9	9.2	10.0
Switzerland	7.4	8.2 |	9.6	10.2	11.2	10.6e	10.7	11.4
Turkey	2.4	2.7	2.5 |	4.9	5.4	6.0	6.1	. .
United Kingdom	5.6	5.9	6.8	7.0	8.2	8.4	8.8	9.8
United States	9.0	12.4	13.7	13.7	15.7	16.0	16.4	17.4
OECD	**6.6**	**6.9**	**7.5**	**7.8**	**8.7**	**8.6**	**8.8**	**9.6**[3]

| Break in series.
e: Preliminary estimate.
1. Excluding investments.
2. Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.
3. OECD average calculated on the most recent data available.

Source: OECD Health Data 2011; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932526882

ANNEX B

Data Sources for Non-OECD Countries

Brazil	
Indicators 1.1 and 1.7	World Bank, *World Development Indicators and Global Development Finance*, online, *www.databank.worldbank.org*.
Indicator 1.8	World Bank, *Health Nutrition and Population Statistics*, online, *www.databank.worldbank.org*.
Indicators 1.12, 4.4 and 4.9	Ministry of Health /SE/Datasus, *Outcare Information System of SUS (SIA/SUS)*, *www.datasus.gov.br*.
Indicators 2.1 and 2.3	Ministry of Health (2010), *VIGITEL: Vigilância de fatores de riesco e proteção para doenças crônicas por inquérito telefônico 2009*, Brasilia, DF.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicators 3.2 and 3.7	Ministry of Health/SGTES/DEGERTS/CONPROF, Professional Councils, *www.datasus.gov.br*.
Indicator 4.3	Ministry of Health/SAS, *National Register of Health Facilities (CNES)*, *www.datasus.gov.br*.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.
China	
Indicator 1.1	World Bank, *World Development Indicators and Global Development Finance*, online, *www.databank.worldbank.org*.
Indicators 1.7 and 1.12	Ministry of Health (2011), *China Health Statistics Yearbook 2011*, Peking Union Medical College Press, Beijing.
Indicator 1.8	World Bank, *Health Nutrition and Population Statistics*, online, *www.databank.worldbank.org*.
Indicator 2.1	WHO, *Global Adult Tobacco Survey (GATS)*, *www.who.int/tobacco/surveillance/gats/en/index.html*.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicator 2.3	Ministry of Health, Ministry of Science and Technology and National Bureau of Statistics (2004), *The Nutrition and Health Status of the Chinese People 2002*.
Indicators 3.2, 3.7, 4.3 and 4.4	Ministry of Health (2010), *China Health Statistics Yearbook 2010*, Peking Union Medical College Press, Beijing.
Indicator 4.5	Ministry of Health (2010), *China Health Statistics Digest 2010*, Peking Union Medical College Press, Beijing.
Indicator 4.9	Lumbiganon, P. *et al.* (2010), "Method of Delivery and Pregnancy Outcomes in Asia: The WHO Global Survey on Maternal and Perinatal Health 2007-08", *The Lancet,* Vol. 375, pp. 490-499.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.
India	
Indicators 1.1 and 1.7	World Bank, *World Development Indicators and Global Development Finance*, online, *www.databank.worldbank.org*.
Indicator 1.8	World Bank, *Health Nutrition and Population Statistics*, online, *www.databank.worldbank.org*.
Indicator 1.12	UNAIDS (2004), *HIV/AIDS Profile*, Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva.
Indicator 2.1	WHO, *Global Adult Tobacco Survey (GATS)*, *www.who.int/tobacco/surveillance/gats/en/index.html*.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicator 2.3	International Institute for Population Science (IIPS), *ORC Macro*. *National Family Health Survey (NFHS-3), 2005-06*.
Indicators 3.2, 3.7 and 4.3	Ministry of Health and Family Welfare, *National Health Profile 2010*.
Indicator 4.9	Lumbiganon, P. *et al.* (2010), "Method of Delivery and Pregnancy Outcomes in Asia: The WHO Global Survey on Maternal and Perinatal Health 2007-08", *The Lancet,* Vol. 375, pp. 490-499.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.

Indonesia	
Indicators 1.1 and 1.7	World Bank, *World Development Indicators and Global Development Finance*, online, *www.databank.worldbank.org*.
Indicator 1.8	World Bank, *Health Nutrition and Population Statistics*, online, *www.databank.worldbank.org*.
Indicators 1.12, 3.2, 3.7, 4.3 and 4.5	Ministry of Health (2010), *Indonesia Health Profile 2009*.
Indicator 2.1	WHO, *Global Infobase*, *www.infobase.who.int*.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicator 2.3	Soemantri, S., J. Pradono and D. Hapsari (2001), *National Health Survey (Surkesnas) 2001. National Household Health Survey Morbidity Study*, NCD risk factors in Indonesia. *www.who.int/chp/steps/STEPS_Report_Indonesia_National_2001.pdf*.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.
Russian Federation	
Indicator 1.1	Federal States Statistical Services (ROSSTAT), *Central Statistics Database*, *www.gks.ru/dbscripts/Cbsd/DBInet.cgi*; and *Human Mortality Database (2011) www.mortality.org* or *www.humanmortality.de*.
Indicators 1.7 and 4.3	Federal States Statistical Services (ROSSTAT), *Central Statistics Database*, *www.gks.ru/dbscripts/Cbsd/DBInet.cgi*.
Indicators 1.8, 1.12, 3.2, 3.7, 4.4, 4.5 and 4.9	WHO-Europe, *European Health for All Database* (HFA-DB).
Indicator 2.1	WHO, *Global Adult Tobacco Survey (GATS)*, *www.who.int/tobacco/surveillance/gats/en/index.html*.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicator 2.3	Institute of Sociology, Paragon Research International Russian Center for Preventive Medicine, Russian Institute of Nutrition and State Statistical Bureau, *Russian Longitudinal Monitoring Survey (RLMS) 2005*.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.
South Africa	
Indicators 1.1 and 1.7	World Bank, *World Development Indicators and Global Development Finance*, online, *www.databank.worldbank.org*.
Indicators 1.8, 4.5 and 4.9	National Department of Health, *District Health Information System* (DHIS), online.
Indicator 1.12	Actuarial Society of South Africa, *ASSA Model 2008*.
Indicator 2.1	Health System Trust, *www.hst.org.za*.
Indicator 2.2	WHO, *Global Information System on Alcohol and Health*, online, *www.apps.who.int/ghodata*.
Indicator 2.3	Department of Health, Medical Research Council (2007), *ORC Macro, South Africa Demographic and Health Survey 2003*, National Department of Health, Pretoria.
Indicators 3.2 and 3.7	Health Professions Council of South Africa (HPCSA), *www.hpcsa.co.za*.
Indicator 4.3	Private sector: Wilbury and Claymore, *Hospitals Direct Database*. Public sector: National Department of Health, *District Health Information System* (DHIS), online.
Indicator 5.11	WHO, *Vaccine-Preventable Diseases Monitoring System*, *www.who.int/immunization_monitoring/routine/en/*.
Indicators 7.1 and 7.2	WHO, *Global Health Expenditure Database*, *www.who.int/nha/database*.

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Chapter 1. Health status

Chapter 2. Non-medical determinants of health

Chapter 3. Health workforce

Chapter 4. Health care activities

Chapter 5. Quality of care

Chapter 6. Access to care

Chapter 7. Health expenditure and financing

Chapter 8. Long-term care

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