Health at a Glance 2015

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Please cite this publication as:
OECD (2015), *Health at a Glance 2015: OECD Indicators*, OECD Publishing, Paris.
http://dx.doi.org/10.1787/health_glance-2015-en

ISBN 978-92-64-23257-0 (print)
ISBN 978-92-64-24351-4 (PDF)

Series: Health at a Glance
ISSN 1995-3992 (print)
ISSN 1999-1312 (online)

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Foreword

This 2015 edition of Health at a Glance – OECD Indicators *presents the most recent comparable data on key indicators of health and health systems across the 34 OECD member countries. For a subset of indicators, it also reports data for partner countries, including Brazil, China, Columbia, Costa Rica, India, Indonesia, Latvia, Lithuania, the Russian Federation and South Africa. This edition includes two new features: a set of dashboard indicators on health and health systems, presented in Chapter 1, summarising the comparative performance of OECD countries, and a special chapter on recent trends in pharmaceutical spending across OECD countries, presented in Chapter 2.*

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 from the 34 OECD countries. The OECD gratefully acknowledges their effort in supplying most of the data contained in this publication. The OECD also acknowledges the contribution of other international organisations, especially the World Health Organization and Eurostat, for sharing some of the data presented here, and the European Commission for supporting data development work.*

This publication was prepared by a team from the OECD Health Division under the co-ordination of Gaétan Lafortune. Chapter 1 was prepared by Gaétan Lafortune and Nelly Biondi; Chapter 2 by Valérie Paris, Annalisa Belloni, David Morgan and Michael Mueller; Chapter 3 by Nelly Biondi and Gaétan Lafortune; Chapter 4 by Marion Devaux, Nelly Biondi and Franco Sassi; Chapter 5 by Gaétan Lafortune, Frédéric Daniel, Liliane Moreira and Michael Gmeinder; Chapter 6 by Gaétan Lafortune, Frédéric Daniel and Nelly Biondi; Chapter 7 by Gaétan Lafortune, Marion Devaux, Michael Mueller, Marie-Clémence Canaud, Frédéric Daniel and Nelly Biondi; Chapter 8 by Ian Brownwood, Ian Forde, Rie Fujisawa, Nelly Biondi, Emily Hewlett, Carol Nader, Luke Slawomirski and Niek Klazinga; Chapter 9 by David Morgan, Michael Mueller, Yuki Murakami and Michael Gmeinder; Chapter 10 by Valérie Paris, Annalisa Belloni, David Morgan, Michael Mueller, Luke Slawomirski and Marie-Clémence Canaud; Chapter 11 by Tim Muir, Yuki Murakami, Gaétan Lafortune, Marie-Clémence Canaud and Nelly Biondi. This publication benefited from useful comments from Francesca Colombo.

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Executive Summary

Health at a Glance 2015 presents cross-country comparisons of the health status of populations and the performance of health systems in OECD countries, candidate countries and key emerging economies. This edition offers two new features: a set of dashboard indicators on health outcomes and health systems (presented in Chapter 1), which summarise the comparative performance of OECD countries; and a special chapter on recent trends in pharmaceutical spending across OECD countries. The key findings of this publication are as follows.

New drugs will push up pharmaceutical spending unless policy adapts

- Across OECD countries, pharmaceutical spending reached around USD 800 billion in 2013. This amounts to about 20% of total health spending on average when pharmaceutical consumption in hospital is added to the purchase of pharmaceutical drugs in the retail sector.
- The growth of retail pharmaceutical spending has slowed down in recent years in most OECD countries, while spending on pharmaceuticals in hospital has generally increased.
- The emergence of new high-cost, specialty medicines targeting small populations and/or complex conditions has prompted new debate on the long-term sustainability and efficiency of pharmaceutical spending.

Life expectancy continues to rise, but widespread differences persist across countries and socio-demographic groups

- Life expectancy continues to increase steadily in OECD countries, rising on average by 3-4 months each year. In 2013, life expectancy at birth reached 80.5 years on average, an increase of over ten years since 1970. Japan, Spain and Switzerland lead a group of eight OECD countries in which life expectancy now exceeds 82 years.
- Life expectancy in key emerging economies, such as India, Indonesia, Brazil and China, has increased over the past few decades, converging rapidly towards the OECD average. There has been much less progress in countries such as South Africa (due mainly to the epidemic of HIV/AIDS) and the Russian Federation (due mainly to a rise in risk-increasing behaviours among men).
- Across OECD countries, women can expect to live more than 5 years longer than men, but this gap has narrowed by 1.5 years since 1990.
- People with the highest level of education can expect to live six years longer on average than those with the lowest level. This difference is particularly pronounced for men, with an average gap of almost eight years.

The number of doctors and nurses has never been higher in OECD countries

- Since 2000, the number of doctors and nurses has grown in nearly all OECD countries, both in absolute number and on a per capita basis. The growth was particularly rapid in some countries that had fewer doctors in 2000 (e.g., Turkey, Korea, Mexico and the United Kingdom), but there was also a strong rise in countries that already had a relatively large number of doctors (e.g., Greece, Austria and Australia).
- Growth was pushed by increased student intakes in domestic medical and nursing education programmes, as well as by more foreign-trained doctors and nurses working in OECD countries in response to short-term needs.
- There are more than two specialist doctors for every generalist on average across the OECD. In several countries, the slow growth in the number of generalists raises concerns about access to primary care for all the population.

Out-of-pocket spending remains a barrier to accessing care

- All OECD countries have universal health coverage for a core set of services, except Greece, the United States and Poland. In Greece, the economic crisis led to a loss in health insurance coverage among long-term unemployed and many self-employed workers. However, since June 2014, measures have been taken to provide the uninsured population with access to prescribed pharmaceuticals and emergency services. In the United States, the percentage of the population uninsured has come down from 14.4% in 2013 to 11.5% in 2014 following the implementation of the Affordable Care Act and is expected to diminish further in 2015.
- Out-of-pocket spending by households can create barriers to health care access. On average across OECD countries, about 20% of health spending is paid directly by patients, ranging from less than 10% in France and the United Kingdom to over 30% in Mexico, Korea, Chile and Greece. In Greece, the share of health spending paid directly by households has increased by 4 percentage points since 2009, as public spending was reduced.
- Low-income households are four to six times more likely to report unmet needs for medical care and dental care for financial or other reasons than those with high income. In some countries, like Greece, the share of the population reporting some unmet medical care needs has more than doubled during the economic crisis.

Too many lives are still lost because quality of care is not improving fast enough

- Better treatment of life-threatening conditions such as heart attack and stroke has led to lower mortality rates in most OECD countries. On average, mortality rates following hospital admissions for heart attack fell by about 30% between 2003 and 2013 and for stroke by about 20%. Despite the progress achieved so far, there is still room in many countries to improve the implementation of best practices in acute care to further reduce mortality after heart attack and stroke.
- Survival has also improved for many types of cancer in most countries, due to earlier diagnosis and better treatment. For example, the relative five-year survival for breast cancer and colorectal cancer has increased from around 55% on average for people diagnosed and followed up in the period 1998-2003 to over 60% for those diagnosed and followed up ten years later (2008-13). Still, several countries such as Chile, Poland and the

United Kingdom are still lagging behind the best performers in survival following diagnosis for different types of cancer.

- The quality of primary care has improved in many countries, as illustrated by the continuing reduction in avoidable hospital admissions for chronic diseases. Still, there is room in all countries to improve primary care to further reduce costly hospital admissions, in the context of population ageing and a growing number of people with one or more chronic diseases.
- Pharmaceutical prescribing practices can also be used as indicators of health care quality. For example, antibiotics should be prescribed only where there is an evidence-based need, to reduce the risk of antimicrobial resistance. Total volumes of antibiotic consumption vary more than four-fold across OECD countries, with Chile, the Netherlands and Estonia reporting the lowest, and Turkey and Greece reporting the highest. Reducing unnecessary antibiotic use is a pressing, yet complex problem, requiring multiple co-ordinated initiatives including surveillance, regulation and education of professionals and patients.

Reader's guide

Health at a Glance 2015 presents comparisons of key indicators of health and health system performance across the 34 OECD countries, as well as for candidate and key partner countries where possible (Brazil, China, Colombia, Costa Rica, India, Indonesia, Latvia, Lithuania, the Russian Federation and South Africa). The data presented in this publication come mainly from official national statistics, unless otherwise indicated.

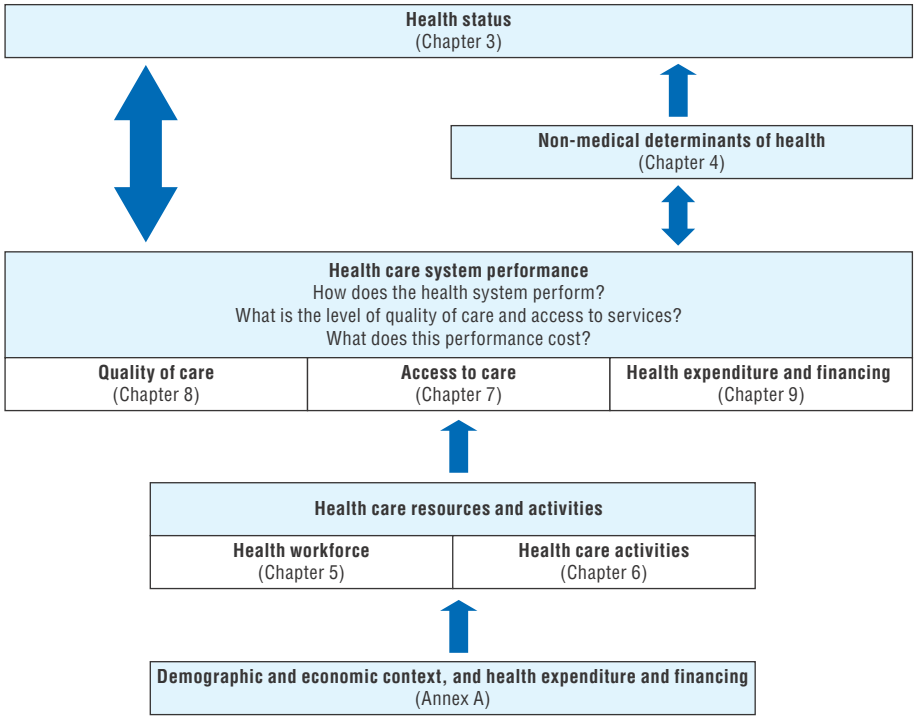
Content of the publication

This new edition of Health at a Glance contains two main new features: 1) a series of dashboards are presented in Chapter 1 to summarise, in a clear and user-friendly way, the relative strengths and weaknesses of OECD countries on a selected set of key indicators on health and health system performance which are presented in other chapters of this publication; and 2) a special focus is put on the pharmaceutical sector, including an analysis of recent trends and future challenges in the management of pharmaceutical expenditure in Chapter 2, as well as a new chapter on the pharmaceutical sector (Chapter 10), combining both indicators that were previously shown in other chapters and some new indicators based on the two-page format used in most of this publication.

The general framework underlying the indicators presented in this publication assesses the performance of health systems in the context of a broader view of public health (Figure 0.1). It is based on a framework that was endorsed for the OECD Health Care Quality Indicators project (Kelley and Hurst, 2006; Arah et al., 2006). This framework recognises that the goal of health systems is to improve the health status of the population. Many factors influence health status, including a number that fall outside health care systems, such as the physical environment in which people live, and individual lifestyles and behaviours. The performance of health care systems also contributes obviously to the health status of the population. This performance includes several dimensions, including the degree of access to care and the quality of care provided. 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 also greatly on the health workers providing the services, and the training and equipment at their disposal. Finally, a number of contextual factors also affect the health status of the population and the demand for and supply of health services also need to be taken into account, including the demographic context, and economic and social development.

Health at a Glance 2015 compares OECD countries on each component of this general framework.

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



Source: Adapted from Kelley, E. and J. Hurst (2006).

Following the first two new chapters presenting the set of dashboards of indicators and the special focus on pharmaceutical expenditure, Chapter 3 on ***health status*** highlights variations across countries in life expectancy, some of the main causes of mortality and other measures of population health status. This chapter also includes measures of inequality in health status by education and income level for key indicators such as life expectancy and perceived health status.

Chapter 4 on ***non-medical determinants of health*** focuses on health-related lifestyles and behaviours, including tobacco smoking, alcohol drinking, nutrition, and overweight and obesity problems among children and adults. Most of these factors can be modified by public health and prevention policies.

Chapter 5 looks at the ***health workforce***, focusing on the supply and remuneration of doctors and nurses in OECD countries. This chapter presents trends in the number of new graduates from medical and nursing education programmes and also features new indicators on the international migration of doctors and nurses, highlighting the fact that the number and share of foreign-trained doctors and nurses has increased in many OECD countries over the past decade.

Chapter 6 on ***health care activities*** describes some of the main characteristics of health service delivery in different OECD countries, starting with the number of consultations with doctors (which is often the "entry point" of patients to health care systems), hospitalisation rates, the utilisation rates of different diagnostic and surgical procedures, as well as the development of ambulatory surgery for interventions such as cataract surgery and tonsillectomy.

Chapter 7 on ***access to care*** presents a set of indicators related to financial access to care, geographic access, and timely access (waiting times), as well as indicators of self-reported unmet needs for medical care and dental care.

Chapter 8 examines ***quality of care*** or the degree to which care is delivered in accordance with established standards and improves health outcomes. It provides comparisons on quality of care for chronic conditions and pharmaceutical prescriptions, acute care for life-threatening diseases such as heart attack and stroke, patient safety, mental health care, cancer care, the prevention of communicable diseases, as well as some important aspects of patient experiences.

Chapter 9 on ***health expenditure and financing*** compares how much OECD countries spend on health, both on a per capita basis and in relation to GDP. The chapter also provides an analysis of the different types of health services and goods consumed across OECD countries. It also looks at how these health services and goods are paid for and the mix between public funding, private health insurance and direct out-of-pocket payments by households in different countries.

Chapter 10 is a new chapter on the ***pharmaceutical sector***, which combines some indicators that were previously shown in other chapters and some new indicators. The chapter begins by comparing recent trends and levels of pharmaceutical expenditure across countries and how these expenditure are paid for, and then goes on to compare the consumption of certain high-volume pharmaceutical drugs and the share of the generic market in different countries. It concludes by reviewing spending on research and development (R&D) to develop new products in the pharmaceutical sector.

Chapter 11 focuses on ***ageing and long-term care***, starting by a review of demographic trends which highlights the steady growth in the share of the population aged over 65 and 80 in all OECD countries. The chapter presents the most recent data on life expectancy and life expectancy free of disability at age 65, along with data on self-reported health and disability status, as important factors affecting the current and future demand for long-term care. It then focuses on people currently receiving long-term care at home or in institutions and people providing formal or informal care, and concludes with a review of levels and trends in long-term care expenditure in different countries.

A ***statistical annex*** provides additional information on the demographic and economic context within which health and long-term care systems operate.

Presentation of indicators

With the exception of the first two chapters, each of the indicators covered in the rest of the publication is presented over two pages. The first provides a brief commentary highlighting the key findings conveyed by the data, defines the indicator and signals 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. 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.

Data sources

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 *OECD Health Statistics* on OECD.Stat (*http://stats.oecd.org/index.aspx*,

then choose "Health"). More information on *OECD Health Statistics* is available at *www.oecd.org/health/health-data.htm*.

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 end of May 2015), 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

Partner country ISO codes

Brazil	BRA	Indonesia	IDN
China	CHN	Latvia	LVA
Colombia	COL	Lithuania	LTU
Costa Rica	CRI	Russian Federation	RUS
India	IND	South Africa	ZAF

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Kelley, E. and J. Hurst (2006), "Health Care Quality Indicators Project: Conceptual Framework", *OECD Health Working Paper*, No. 23, OECD Publishing, Paris, *http://dx.doi.org/10.1787/440134737301*.

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Chapter 1

Dashboards of health indicators

This chapter presents, for the first time, a set of dashboards which are designed to shed light on how well OECD countries do in promoting the health of their population and improving their health system performance. These dashboards do not have the ambition of identifying which countries have the best health system overall. They summarise some of the relative strengths and weaknesses of countries on a selected set of indicators on health and health system performance, to help identify possible priority areas for actions. These dashboards, which take the form of summary tables, highlight how well OECD countries are doing along five dimensions: 1) health status; 2) risk factors to health; 3) access to care; 4) quality of care; and 5) health care resources. For each of these five dimensions, a selected set of key indicators are presented. The selection of these indicators is based on three main criteria: 1) policy relevance; 2) data availability; and 3) data interpretability (i.e., no ambiguity that a higher/lower value means a better/worse performance). There is, however, one exception to the application of this third criterion: for the fifth dashboard on health care resources, more health spending or more human or physical resources does not necessarily mean better performance. This is why the ranking of countries is displayed differently.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Across the OECD, policy makers have a keen interest to understand how good the health of their people is, and how well their health systems are able to deliver good results. A look at indicators contained in this publication shows that much progress has already been achieved. People in OECD countries are living longer than ever before, with life expectancy now exceeding 80 years on average, thanks to improvements in living conditions and educational attainments, but also to progress in health care. In most countries, universal health coverage provides financial protection against the cost of illness and promotes access to care for the whole population. The quality of care has also generally improved, as illustrated by the reduction in deaths after heart attacks and strokes, and the earlier detection and improved treatments for serious diseases such as diabetes and cancer. But these improvements have come at a cost. Health spending now accounts for about 9% of GDP on average in OECD countries, and exceeds 10% in many countries. Higher health spending is not a problem if the benefits exceed the costs, but there is ample evidence of inequities and inefficiencies in health systems which need to be addressed. There is also a need to achieve a proper balance between spending on disease prevention and treatment.

Despite these improvements, important questions about how successful countries are in achieving good results on different dimensions of health system performance remain. What are the main factors explaining differences in health status and life expectancy across OECD countries? Is the increase in certain risk factors such as inactivity and obesity offsetting some of the gains from the reduction in other risk factors like smoking? To what extent do all citizens have adequate and timely access to care, and good financial protection against the cost of health care? What do we know about the quality and safety of care provided to people with different health conditions? What are the financial, human and technical resources allocated to health systems in different countries? And how does this translate into beneficial activities and better health outcomes?

Answering these questions is by no mean an easy task. But the dashboards presented in this chapter can help shed light on how well countries do in promoting the health of their population and on several dimensions of health system performance. These dashboards do not have the ambition of identifying which countries have the best health system overall. However, they summarise some of the relative strengths and weaknesses of OECD countries on a selected set of indicators on health and health system performance, and can be useful to identify possible priority areas for actions.

These dashboards, which take the form of summary tables, highlight how well OECD countries are doing along five dimensions: 1) health status; 2) risk factors to health; 3) access to care; 4) quality of care; and 5) health care resources. For each of these five dimensions, a selected set of key indicators (ranging from 4 to 7) are presented in a summary table. The selection of these indicators is based on three main criteria: 1) policy relevance; 2) data availability; and 3) data interpretability (i.e., no ambiguity that a higher/lower value means a better/worse performance). There is, however, one notable exception to the application of this third criterion: for the fifth dashboard on health care resources,

more health spending or more human or physical resources does *not* necessarily mean better performance. This is why the ranking of countries is displayed differently (through different colours) in this last dashboard. Box 1.1 at the end of this chapter summarises some of the main limitations in interpreting these dashboards.

In most of the dashboards, countries are classified in three groups: 1) top third performer; 2) middle third performer; and 3) bottom third performer. In addition, the specific ranking of countries is indicated in each cell to provide further information on how close countries may be to the other group. The ranking is based on the number of countries for which data are available for each indicator (with a maximum of 34, when all countries are covered), with countries separated in three equal groups. For the first indicator related to access to care (the percentage of the population with health coverage), the grouping of countries is based on a different method because most countries are at or close to 100% coverage: the top countries are defined as those with a population coverage rate between 95% and 100%, the middle countries with a coverage between 90% and 95%, and the bottom countries with a coverage of less than 90%. The availability of comparable data is also more limited for indicators of access to care, either because of a lack of harmonisation in survey instruments (for indicators related to unmet care needs) or limitations in administrative data (for indicators on waiting times).

Health status

The broad measures of population health status shown in Table 1.1, such as life expectancy at various ages, are not only related to health spending and the performance of health systems, but also to a wide range of non-medical determinants of health (with some of the lifestyle and behavioural factors presented in Table 1.2). Countries that perform well on life expectancy at birth for men and women usually also tend to do well on life expectancy at older ages, and typically have lower rates of mortality from cardiovascular diseases (the main causes of death in nearly all OECD countries).

Japan, Spain, Switzerland, Italy and France are among the countries that have the highest life expectancy at birth and at older ages, although France does not perform so well in terms of life expectancy at birth for men, reflecting higher mortality rates among younger and middle-aged men.

Mexico, Hungary, the Slovak Republic and Turkey have the lowest life expectancy at birth and older ages, although Turkey has achieved huge gains in longevity over the past few decades and is quickly moving towards the OECD average (see the first indicator on life expectancy in Chapter 3 for trends over time).

While higher health spending per capita is generally associated with higher life expectancy, this relationship is less pronounced in countries with the highest health spending per capita. Japan, Spain and Korea stand out as having relatively high life expectancies, and the United States relatively low life expectancies, given their levels of health spending (see Table 1.5). Life expectancy in the United States is lower than in most other OECD countries because of higher mortality rates from various health-related behaviors (including higher calorie consumption and obesity rates, higher consumption of legal and illegal drugs, higher deaths from road traffic accidents and homicides), adverse socio-economic conditions affecting a large segment of the US population, and poor access and co-ordination of care for certain population groups.

Risk factors to health

Most countries do not perform well for at least one or more indicators of risk factors to health, whether that is the proportion of their population smoking tobacco, alcohol consumption, or overweight and obesity among children and adults (Table 1.2). This highlights the importance of countries putting a higher priority on health promotion and disease prevention policies to reduce modifiable risk factors to health and mortality from related diseases.

The United States, Canada, Australia and Mexico have achieved remarkable progress over the past few decades in reducing tobacco smoking among adults and have very low rates now, but they face the challenge of tackling relatively high rates of overweight and obesity among children and adults. Some countries like Italy and Portugal currently have a relatively low rate of obesity among adults, but the current high rate of overweight and obesity among children is likely to translate into higher rates among adults in the future. Other countries like Turkey and Greece have relatively low levels of alcohol consumption, but still have a way to go to reduce tobacco smoking. Alcohol consumption remains high in Austria, Estonia, the Czech Republic, Hungary, France and Germany, although the overall level of consumption has come down in many of these countries over the past few decades (see the indicator on alcohol consumption in Chapter 4).

Access to care

Most OECD countries have achieved universal (or near-universal) coverage of health care costs for a core set of services, with the exception of Greece, the United States and Poland, where a sizeable proportion of the population is still not covered (Table 1.3). In the United States, the percentage of the population uninsured has started to decrease significantly in 2014, following the implementation of the Affordable Care Act which is designed to expand health insurance coverage. In Greece, the response to the economic crisis has reduced health insurance coverage among people who have become long-term unemployed, and many self-employed workers have also not renewed their health insurance plans because of reduced disposable income. However, since June 2014, uninsured people are covered for prescribed pharmaceuticals and for services in emergency departments in public hospitals, as well as for non-emergency hospital care under certain conditions.

The financial protection that people have against the cost of illness depends not only on whether they have a health insurance, but also on the range of goods and services covered and the extent to which these goods and services are covered. In countries like France and the United Kingdom, the amount that households have to pay directly for health services and goods as a share of their total consumption is relatively low, because most such goods and services are provided free or are fully covered by public and private insurance, with only small additional payments required. Some other countries, such as Korea and Mexico, have achieved universal (or quasi-universal) health coverage, but a relatively small share of the cost of different health services and goods are covered, leaving a significant amount to be paid by households. Direct out-of-pocket payments can create financial barriers to health care, dental care, prescribed pharmaceutical drugs or other health goods or services, particularly for low-income households. The share of household consumption spent on direct medical expenditure is highest in Korea, Switzerland, Portugal, Greece and Mexico, although some of these countries have put in place proper safeguards to protect access to care for people with lower income.

Access to health care may be restricted not only because of financial reasons, but also because of geographic barriers, waiting times and other reasons. In Europe, around 3% of the population on average in countries that are OECD members reported unmet needs for medical examination due to cost, travel distance or waiting lists in 2013, according to the EU-SILC survey. The share of the population reporting such unmet medical care needs was highest in Greece and Poland, and lowest in the Netherlands and Austria. In nearly all countries, a higher proportion of the population reports some unmet needs for dental care, reflecting that public coverage for dental care is generally lower. People in Portugal, Iceland, Italy and Greece reported the highest rates of unmet needs for dental care among European countries that are OECD members in 2013.

Waiting times for different health services indicate the extent to which people have timely access to care for specific interventions such as elective surgery. Denmark, Canada and Israel have relatively low waiting times for interventions such as cataract surgery and knee replacement among the limited group of countries that provide these data, while Poland, Estonia and Norway have relatively long waiting times.

Quality of care

Improving quality of care is a high priority in most OECD countries. Based on the available data, no country consistently performs in the top group on all indicators of quality of care (Table 1.4), even those that spend much more on health. This suggests that there is room for improvement in all countries in the governance of health care quality and prevention, early diagnosis and treatment of different health problems.

The United States is doing well in providing acute care for people having a heart attack or a stroke and preventing them from dying, but is not performing very well in preventing avoidable hospital admissions for people with chronic conditions such as asthma and diabetes. The reverse is true in Portugal, Spain and Switzerland, which have relatively low rates of hospital admissions for certain chronic conditions, but relatively high rates of mortality for patients admitted to hospital for a heart attack or stroke.

Finland and Sweden do relatively well in having high survival of people following diagnosis for cervical, breast or colorectal cancer, while the survival for these types of cancer remains lower in Chile, Poland, the Czech Republic, the United Kingdom and Ireland. An important pillar to achieve progress in the fight against cancer is to establish a national cancer control plan to focus political and public attention on performance in cancer prevention, early diagnosis and treatment.

Health care resources

Higher health spending is not always closely related to a higher supply of health human resources or to a higher supply of physical and technical equipment in health systems.

The United States continues to spend much more on health per capita than all other OECD countries, but is not in the top group in terms of the number of doctors or nurses per population. Following the United States, the next biggest spenders on health are Switzerland, Norway, the Netherlands and Sweden, whereas the lowest per capita spenders are Mexico and Turkey (Table 1.5). Health spending per capita is also relatively low in Chile, Poland and Korea, although it has grown quite rapidly over the past decade.

Greece, Austria and Norway have the highest number of doctors per capita, while Switzerland, Norway and Denmark have the highest number of nurses. The mix between different categories of health workers varies widely, with some countries choosing to have

relatively more doctors (such as Greece and Austria) and others opting to rely more on nurses and other health care providers to deliver some services (such as Finland and the United States).

Some Central and Eastern European countries such as Hungary, Poland and the Slovak Republic continue to have a relatively high number of hospital beds, reflecting an excessive focus of activities in hospital. The number of hospital beds per capita is lowest in Mexico, Chile, Sweden, Turkey, Canada and the United Kingdom. Relatively low number of hospital beds may not create any capacity problem if primary care systems are sufficiently developed to reduce the need for hospitalisation.

The availability of expensive technological equipment such as MRI and CT scanners is highest in Japan and the United States, and much lower in Mexico, Hungary, Israel and the United Kingdom. There is no ideal number of MRI units or CT scanners per population, and there is also evidence in many countries of inappropriate and excessive use of these expensive diagnostic technologies.

Higher health spending and other human or technical resources are not always correlated with greater access to care or higher quality of care, as shown by the lack of any consistent correlation in countries' relative position between health spending and various indicators of access or quality of care. For example, Norway has high levels of health spending and also relatively high numbers of doctors and nurses, and does generally well on many indicators of quality of care, but still faces some persisting issues in terms of access to care, for instance, on waiting times for elective surgery. On the other hand, the Czech Republic spends much less on health and is achieving good results for several indicators on access to care, but could improve public health and prevention programmes and improve the quality of care for people who have chronic diseases such as diabetes. The performance of health systems in achieving the key policy goals of universal access and quality depends not only on allocating more money on health care, but also on making a more rational use of resources and providing the right incentives to ensure the best value for money spent.

Table 1.1. **Health status**

Top third performers
Middle third performers
Bottom third performers

Note: Countries are listed in alphabetical order. The number in the cell indicates the position of each country among all countries for which data is available. For the mortality indicator, the top performers are countries with the lowest rates.

Indicator	Life expectancy at birth - Men	Life expectancy at birth - Women	Life expectancy at 65 - Men*	Life expectancy at 65 - Women*	Mortality from cardiovascular diseases**
Australia	8	7	3	7	7
Austria	18	13	16	13	26
Belgium	22	19	23	14	15
Canada	13	17	10	10	5
Chile	27	27	27	28	16
Czech Rep.	28	28	29	30	31
Denmark	21	25	25	26	10
Estonia	32	26	31	27	32
Finland	23	8	20	9	24
France	15	3	2	2	2
Germany	18	19	16	22	25
Greece	17	9	13	11	27
Hungary	33	33	34	34	33
Iceland	2	16	10	20	23
Ireland	15	23	19	24	21
Israel	3	11	3	17	3
Italy	3	4	8	4	17
Japan	5	1	6	1	1
Korea	20	5	20	5	4
Luxembourg	9	11	6	8	12
Mexico	34	34	28	32	22
Netherlands	11	19	16	20	8
New Zealand	11	19	8	17	18
Norway	9	13	15	14	11
Poland	30	29	30	28	30
Portugal	24	9	23	11	14
Slovak Rep.	31	31	33	31	34
Slovenia	25	17	26	14	28
Spain	5	2	3	3	6
Sweden	5	13	10	17	19
Switzerland	1	6	1	5	13
Turkey	29	32	32	33	29
United Kingdom	14	24	14	23	9
United States	26	29	22	25	20

* Life expectancy at 65 is not presented in chapter 3 on health status, but rather in chapter 11 on ageing and long-term care.
** Mortality from cardiovascular diseases includes deaths from ischemic heart diseases and cerebrovascular diseases shown in Chapter 3, as well as other cardiovascular diseases.
Source: Health at a Glance 2015.

StatLink http://dx.doi.org/10.1787/888933281467

Table 1.2. **Risk factors**

Top third performers
Middle third performers
Bottom third performers

Note: Countries are listed in alphabetical order. The number in the cell indicates the position of each country among all countries for which data is available.

Indicator	Smoking in adults	Alcohol consumption	Obesity in adults*	Overweight and obesity in children**
Australia	4	22	30*	20
Austria	26	34	8	14
Belgium	15	20	9	5
Canada	6	11	29*	21
Chile	33	10	28*	28
Czech Rep.	25	32	20*	5
Denmark	12	17	10	23
Estonia	31	33	18	7
Finland	10	14	26	17
France	30	30	11	13
Germany	23	28	25*	3
Greece	34	7	19	33
Hungary	32	30	31*	24
Iceland	2	6	21	9
Ireland	16	26	24*	11
Israel	11	2	13	18
Italy	24	4	4	31
Japan	17	7	1*	15
Korea	19	12	2*	16
Luxembourg	9	29	23*	19
Mexico	3	3	33*	30
Netherlands	13	14	6	7
New Zealand	8	16	32*	27
Norway	7	5	3	1
Poland	27	27	14	2
Portugal	14	25	12	25
Slovak Rep.	18	22	16*	3
Slovenia	22	17	17	22
Spain	29	20	15	26
Sweden	1	7	7	9
Switzerland	21	22	4	11
Turkey	27	1	22*	n.a.
United Kingdom	20	19	27*	32
United States	5	13	34*	29

* Data on obesity in adults are based on measured height and weight for all the countries marked with an *. These result in more accurate data and higher obesity rates compared with all other countries that are providing self-reported height and weight.
** Data on overweight or obesity in children are all based on measured data, but refer to different age groups across countries.
Source: Health at a Glance 2015.

StatLink http://dx.doi.org/10.1787/888933281473

Table 1.3. **Access to care**

Top third performers (or between 95% and 100% for health care coverage)
Middle third performers (or between 90% and 95% for health care coverage)
Bottom third performers (or less than 90% for health care coverage)

Note: Countries are listed in alphabetical order. The number in the cell indicates the position of each country among all countries for which data is available. For out-of-pocket medical expenditure, unmet care needs and the waiting times indicators, the top performers in terms of access are countries with the lowest expenditure as a share of household consumption, the lowest unmet care needs or lowest waiting times.

Indicator	Health care coverage	Share of out of pocket medical expenditure in household consumption	Unmet medical care needs*	Unmet dental care needs*	Waiting times for cataract surgery - median	Waiting times for knee replacement - median
Australia	1	22	n.a.	n.a.	8	12
Austria	1	18	1	2	n.a.	n.a.
Belgium	1	20	11	8	n.a.	n.a.
Canada	1	11	n.a.	n.a.	2	4
Chile	1	28	n.a.	n.a.	13	8
Czech Rep.	1	7	5	4	n.a.	n.a.
Denmark	1	14	7	10	4	1
Estonia	2	12	21	19	9	13
Finland	1	18	19	11	10	7
France	1	3	15	15	n.a.	n.a.
Germany	1	5	9	5	n.a.	n.a.
Greece	3	32	23	20	n.a.	n.a.
Hungary	1	30	14	9	1	6
Iceland	1	21	18	22	n.a.	n.a.
Ireland	1	22	17	17	n.a.	n.a.
Israel	1	16	n.a.	n.a.	3	3
Italy	1	22	20	21	n.a.	n.a.
Japan	1	9	n.a.	n.a.	n.a.	n.a.
Korea	1	34	n.a.	n.a.	n.a.	n.a.
Luxembourg	1	5	4	3	n.a.	n.a.
Mexico	1	30	n.a.	n.a.	n.a.	n.a.
Netherlands	1	2**	1	1	n.a.	n.a.
New Zealand	1	9	n.a.	n.a.	7	5
Norway	1	16	8	15	12	10
Poland	2	13	22	13	14	14
Portugal	1	29	16	23	6	11
Slovak Rep.	2	22	11	6	n.a.	n.a.
Slovenia	1	7	n.a.	n.a.	n.a.	n.a.
Spain	1	26	3	18	11	9
Sweden	1	26	11	14	n.a.	n.a.
Switzerland	1	33	6	12	n.a.	n.a.
Turkey	1	1	n.a.	n.a.	n.a.	n.a.
United Kingdom	1	3	9	7	4	2
United States	3	14	n.a.	n.a.	n.a.	n.a.

* Unmet medical or dental care needs may be for financial reasons, waiting times or long distance to travel to get access to services. The data only cover European countries because they are based on the EU-SILC survey.
** The ranking for the Netherlands is overrated as it excludes compulsory co-payments to health insurers (if these were included, this would move the Netherlands in the middle third category).
Source: Health at a Glance 2015.

StatLink http://dx.doi.org/10.1787/888933281483

Table 1.4. **Quality of care**

Top third performers
Middle third performers
Bottom third performers

Note: Countries are listed in alphabetical order. The number in the cell indicates the position of each country among all countries for which data is available. For the indicators of avoidable hospital admissions and case-fatality rates, the top performers are countries with the lowest rates.

Indicator	Asthma and COPD hospital admission	Diabetes hospital admission	Case-fatality for AMI (admission-based)	Case-fatality for ischemic stroke (admission-based)	Cervical cancer survival	Breast cancer survival	Colorectal cancer survival
Australia	29	17	1	20	11	5	3
Austria	28	29	27	8	19	19	7
Belgium	16	20	19	20	16	12	4
Canada	18	10	11	26	12	8	13
Chile	6	27	31	16	25	23	n.a.
Czech Rep.	12	23	11	22	13	22	21
Denmark	26	14	7	17	5	11	18
Estonia	27	n.a.	28	29	8	25	22
Finland	10	15	9	4	6	4	7
France	7	21	17	13	n.a.	n.a.	n.a.
Germany	21	25	25	8	15	15	10
Greece	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hungary	31	11	30	22	n.a.	n.a.	n.a.
Iceland	14	4	15	14	7	10	n.a.
Ireland	32	16	8	24	20	20	19
Israel	19	9	11	6	10	7	2
Italy	2	1	5	7	3	15	12
Japan	1	18	29	1	4	9	4
Korea	24	30	24	2	2	14	1
Luxembourg	9	19	16	17	n.a.	n.a.	n.a.
Mexico	5	31	32	31	n.a.	n.a.	n.a.
Netherlands	11	6	20	12	16	16	11
New Zealand	30	22	10	14	14	12	15
Norway	17	7	11	5	1	2	13
Poland	20	28	3	n.a.	24	24	23
Portugal	3	8	26	27	18	6	16
Slovak Rep.	23	26	17	28	n.a.	n.a.	n.a.
Slovenia	8	13	4	30	23	18	17
Spain	15	3	23	24	n.a.	n.a.	n.a.
Sweden	13	12	2	8	9	1	6
Switzerland	4	2	22	11	n.a.	n.a.	n.a.
Turkey	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	22	5	20	19	22	21	20
United States	25	24	5	3	21	2	9

Source: Health at a Glance 2015.

StatLink http://dx.doi.org/10.1787/888933281494

Table 1.5. **Health care resources**

Top third in health spending or resources
Middle third in health spending or resources
Bottom third in health spending or resources

Note: Countries are listed in alphabetical order. The number in the cell indicates the position of each country among all countries for which data is available. Although countries are ranked from highest health spending or availability of resources to lowest, this does not necessarily mean better performance.

Indicator	Health expenditure per capita	Doctors per capita (active)	Nurses per capita (active)	Hospital beds per capita	MRI units per capita*	CT scanners per capita*
Australia	13	14	10	18	12*	2*
Austria	8	2	21	4	9	10
Belgium	11	21	15	9	19*	11*
Canada	10	28	16	29	22	23
Chile	30	33	27	32	26	26
Czech Rep.	27	10	20	7	24	22
Denmark	7	11	3	23	10	5
Estonia	31	18	23	12	17	15
Finland	17	20	5	13	6	13
France	12	16	17	8	21	24
Germany	6	5	6	3	15*	16*
Greece	25	1	32	14	5	8
Hungary	29	19	22	5	31*	31*
Iceland	15	11	4	21	7	4
Ireland	16	25	7	26	13	17
Israel	24	13	31	22	30	29
Italy	20	8	24	19	3	9
Japan	14	29	13	1	1	1
Korea	26	31	29	2	4	6
Luxembourg	9	22	9	11	14	12
Mexico	33	32	33	33	32	32
Netherlands	4	17	8	n.a.	16	28
New Zealand	18	22	14	26	18	20
Norway	3	3	2	17	n.a.	n.a.
Poland	32	30	28	6	28	19
Portugal	22	4	25	20	27*	14*
Slovak Rep.	28	14	26	10	25	21
Slovenia	23	26	18	16	23	27
Spain	21	9	30	24	11	18
Sweden	5	7	11	31	n.a.	n.a.
Switzerland	2	6	1	15	8*	7
Turkey	34	34	34	30	20	25
United Kingdom	19	24	19	26	29	30
United States	1	27	12	25	2	3

* Data for most countries marked with an * do not include MRI units and CT scanners installed outside hospitals, leading to an under-estimation. In Australia and Hungary, the data only include MRI units and CT scanners eligible for public reimbursement, also leading to an under-estimation.

Source: Health at a Glance 2015.

StatLink http://dx.doi.org/10.1787/888933281500

Box 1.1. **Limitations in the interpretation and use of the dashboards**

The previous dashboards should be interpreted and used with caution for several reasons:

- Due to limitations in data availability, the indicators selected on each topic do not generally provide a complete coverage of all important aspects related to this topic. For instance, the indicators of health status relate solely to mortality because mortality data are more widely available and comparable across countries than morbidity data. While life expectancy undoubtedly is a key indicator of health status, the lack of indicators about the physical and mental health status of people while they are alive is an important limitation. The same limitations also apply to the dashboards on risk factors (which only include some risk factors to health), access to care and quality of care.
- There are limitations in data comparability for some indicators which should be kept in mind in interpreting the ranking of countries. One notable example is the indicator on obesity rates among adults, which in several countries are based on self-reported height and weight, resulting in an under-estimation compared to those countries that provide more reliable data based on measured obesity.
- The grouping of countries in three groups (tertiles) is based on a simple method using only the point estimates of each country and dividing them in three equal groups. It does not take into account the distribution of the data around the OECD average, nor the confidence intervals for those indicators where these have been calculated (notably for several indicators of quality of care).
- These dashboards only present the current situation and in this respect may hide the progress that some OECD countries might have achieved over time and the fact that they may be moving quickly towards the OECD average. These key trends are discussed in the publication.

Because of these limitations in data availability, comparability and statistical significance, there is no attempt to calculate any summary indicator of performance for each of the dimensions or across dimensions. These dashboards should be used to get a first impression on the relative strengths and weaknesses of different OECD countries on the set of indicators selected. It should be complemented by a more in-depth review of the data and the factors influencing the cross-country variations presented in the following chapters of this publication.

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Chapter 2

Pharmaceutical spending trends and future challenges

Across OECD countries, pharmaceutical spending reached around USD 800 billion in 2013, accounting for about 20% of total health spending on average when pharmaceutical consumption in hospital is added to the purchase of pharmaceutical drugs in the retail sector. This chapter looks at recent trends in pharmaceutical spending across OECD countries. It examines the drivers of recent spending trends, highlighting differences across therapeutic classes. It shows that while the consumption of medicines continues to increase and to push pharmaceutical spending up, cost-containment policies and patent expiries of a number of top-selling products have put downward pressure on pharmaceutical prices in recent years. This resulted in a slower pace of growth over the past decade.

The chapter then looks at emerging challenges for policy makers in the management of pharmaceutical spending. The proliferation of high-cost specialty medicines will be a major driver of health spending growth in the coming years. While some of these medicines bring great benefits to patients, others provide only marginal improvements. This challenges the efficiency of pharmaceutical spending.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

Pharmaceutical spending across OECD countries reached around USD 800 billion in 2013, accounting for about 20% of total health spending on average when pharmaceutical consumption in hospitals is added to the purchase of pharmaceutical drugs in the retail sector. Retail pharmaceutical spending growth has slowed down in most OECD countries in the last decade, while spending on pharmaceuticals used in hospital has increased in most countries where this information is available. Current market developments, such as the multiplication of high-cost medicines targeting small populations and/or complex conditions, have prompted new debates on the sustainability and efficiency of pharmaceutical spending. Will OECD countries be able to afford access to these high-cost medicines to all patients who need them and at what price? Will they get value for the money they will spend?

This chapter looks first at recent trends in pharmaceutical spending and financing across OECD countries. Then, it examines the drivers of recent spending trends, highlighting differences across drug classes. Finally, it focuses on current and predicted trends in pharmaceutical markets and associated challenges in the management of pharmaceutical expenditure.

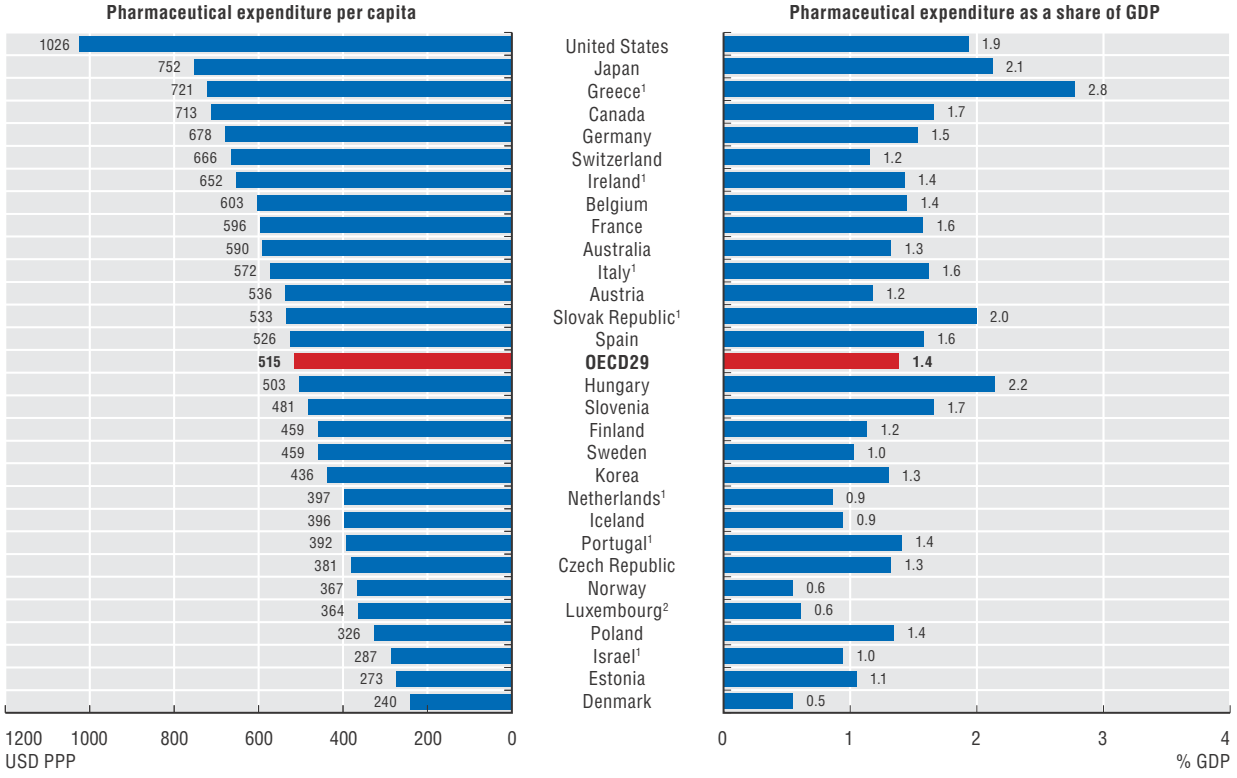
One in every five health dollars is spent on pharmaceuticals

In 2013, OECD countries spent an average of more than 500 USD per person on retail pharmaceuticals[1] (Figure 2.1). In the United States, the level of spending was twice the OECD average, and more than 35% higher than in Japan, the next highest spender. At the other end of the scale, Denmark spent less than half the OECD average.

The data on pharmaceutical spending shown in Figure 2.1 only include those purchased in the *retail* sector, as many countries are not able to supply data on the cost of pharmaceuticals consumed in hospitals and other health care facilities. In those countries that are able to supply these data, the inclusion of pharmaceutical expenditure in hospital and other facilities adds another 10% on top of the retail pharmaceutical spending in the case of Germany, Canada and Australia, and more than 25% in countries such as Spain, Czech Republic and Portugal (Figure 2.2). Such differences stem from the budgetary and distributional channels within a country. On average, the use of pharmaceuticals in hospitals and other health care facilities raises the pharmaceutical bill by around 20%, meaning that a little more than one health dollar in five goes towards purchasing pharmaceuticals.

Prior to 2005, spending on retail pharmaceuticals grew at a faster rate than other key components of health care, such as inpatient and outpatient care, and was a major contributor in driving up overall health expenditures (see Figure 2.3). Over the subsequent decade, however, retail pharmaceutical spending growth was seriously affected by patent expiries of several blockbuster drugs and cost-containment policies, particularly as a consequence of the economic crisis. As a result, retail pharmaceutical spending decreased dramatically in some countries, for example in Portugal, Denmark and Greece.

Figure 2.1. **Expenditure on retail pharmaceuticals per capita and as a share of GDP, 2013 (or nearest year)**

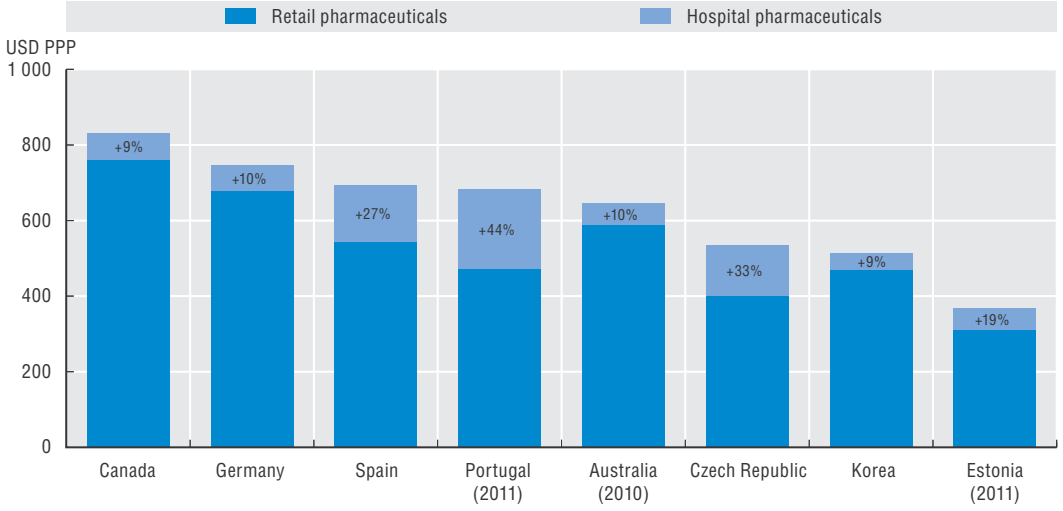


1. Includes medical non-durables.
2. Excludes over-the-counter drugs (OTC).

Source: OECD Health Statistics 2015

StatLink http://dx.doi.org/10.1787/888933280639

Figure 2.2. **Total (retail and hospital) pharmaceutical spending, per capita USD PPP, 2013 (or nearest year)**

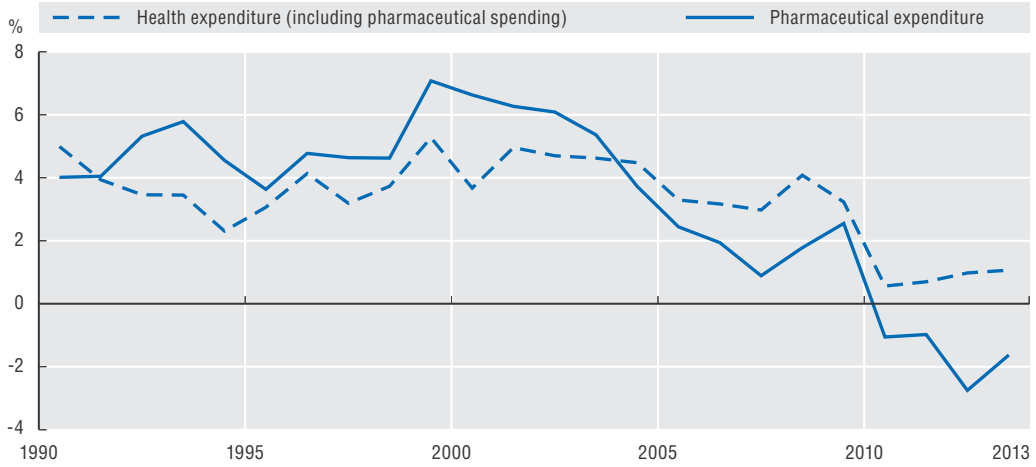


Note: Data for Portugal are OECD estimates based on adjusted total and retail pharmaceutical spending figures.

Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280642

Figure 2.3. **Average annual growth in pharmaceutical and total health expenditure per capita, in real terms, average across OECD countries, 1990 to 2013 (or nearest year)**

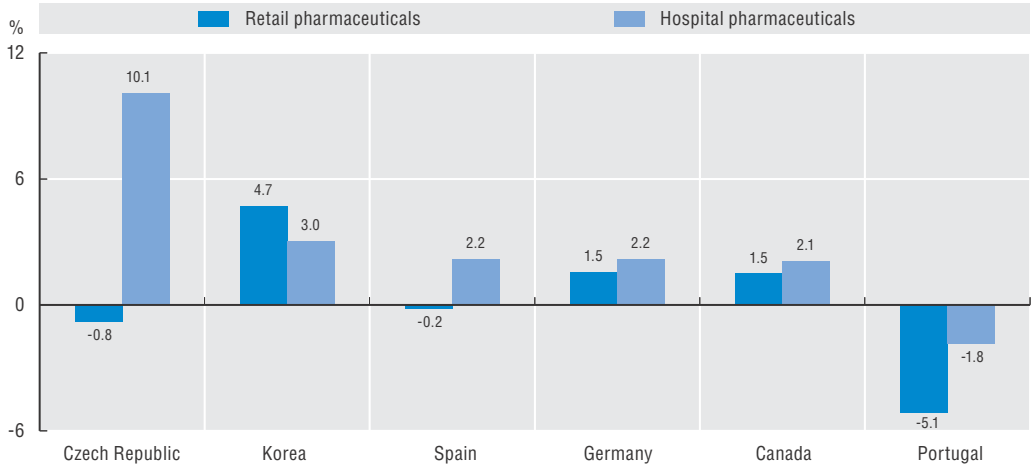


Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280658

Over the same period, spending on hospital medicines grew faster in several countries (see Figure 2.4). The multiplication of specialty drugs[2] offers a partial explanation, as these are often delivered in a hospital setting (including in an outpatient department) rather than dispensed via pharmacies (Hirsch et al., 2014) and are coming to the market with increasingly high prices.

Figure 2.4. **Annual average growth in retail and hospital pharmaceutical expenditure, in real terms, 2005 and 2013 (or nearest year)**



Note: OECD estimates for Portugal exclude expenditure on other medical products from reported total and retail spending.
Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280663

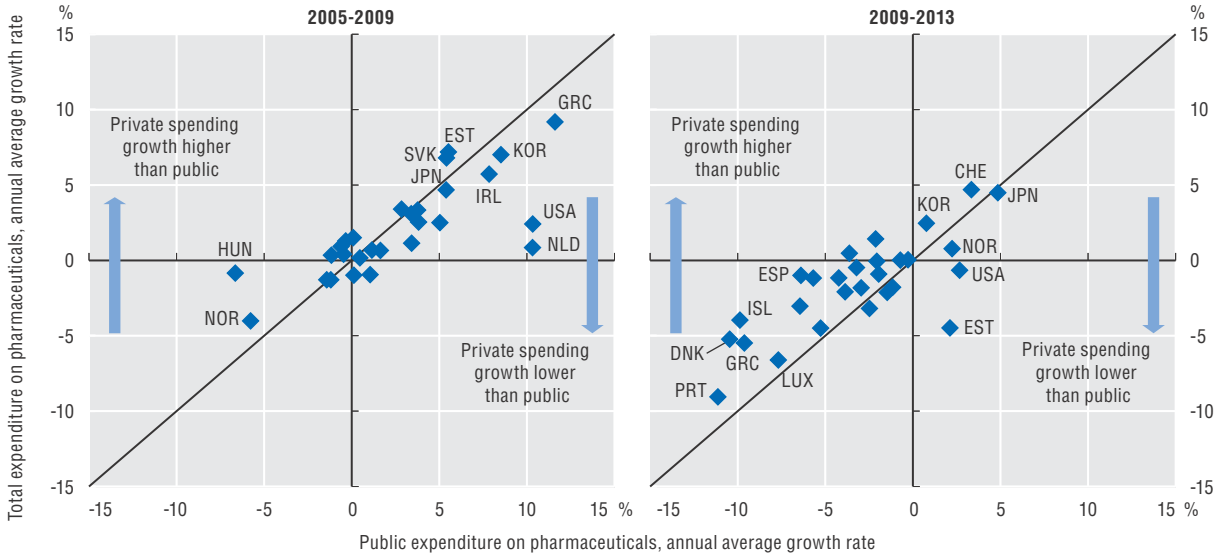
The share of private funding of pharmaceuticals increases

Private funding in the purchasing of pharmaceuticals is greater than for other categories of health care. On average in OECD countries, 43% of retail pharmaceutical

spending is paid for from private sources (private health insurance or out-of-pocket), compared with 21% for inpatient and outpatient care. Most of the private spending for drugs (37%) comes directly from households' pockets, reflecting both the high cost-sharing requirements and the extent of self-consumption of over-the-counter (OTC) medicines (see the indicator on pharmaceutical expenditure in Chapter 10). Countries such as France, Germany and Japan report a relatively low private share of pharmaceutical spending of around 25-30%, whereas the United States and Canada (both countries where private health insurance plays a large role in financing pharmaceutical spending), as well as Poland (where spending on OTC drugs is significant), all report more than 60% of the pharmaceutical bill being covered by private sources.

In a majority of OECD countries, private spending on pharmaceuticals has grown faster than public spending over the last decade (Figure 2.5). In particular, since 2009, private spending on drugs did not decline to the same extent as public spending. This is due in part to an observed shift of some of the cost-burden to households. For example, in Hungary, the out-of-pocket share of spending on prescribed medicines rose from 40% to 45% between 2010 and 2013 (Figure 2.6). The Czech Republic and Slovak Republic also reported increases in the households' share of medicines to 38% and 33% respectively.

Figure 2.5. **Annual growth in public and total retail pharmaceutical spending, OECD countries, 2005-2013**

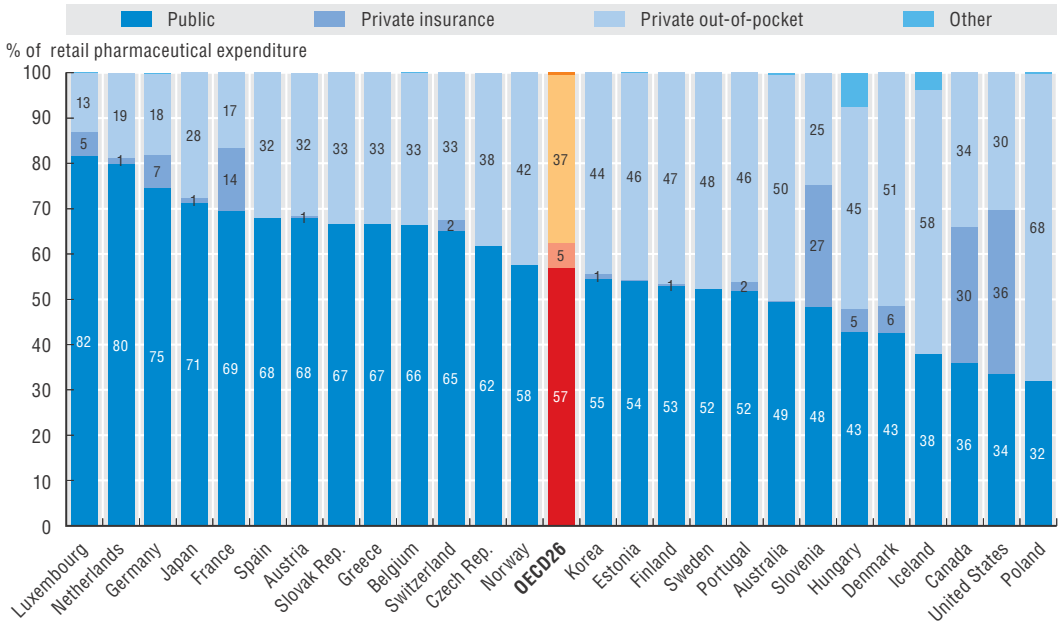


Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280679

The trends in public and private spending are partly explained by a range of policy measures adopted by countries to contain public spending on pharmaceuticals, such as increases in cost-sharing, as well as the increasing use of OTC drugs (usually not reimbursed) compared with prescription drugs (usually reimbursed) in several countries. In Slovenia, Poland and Spain, the OTC share of pharmaceutical spending has significantly increased.

Figure 2.6. **Expenditure on retail pharmaceuticals by type of financing, 2013 (or nearest year)**



Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280689

Pharmaceutical expenditure growth is driven by changes in quantity, prices and therapeutic mix

The increasing demand for medicines and the introduction of new drugs into the market are the main drivers of spending growth. At the same time, the availability of generics and biosimilars combined with the introduction and strengthening of cost-containment policies have exerted a downward pressure on spending in recent years (Belloni et al., forthcoming).

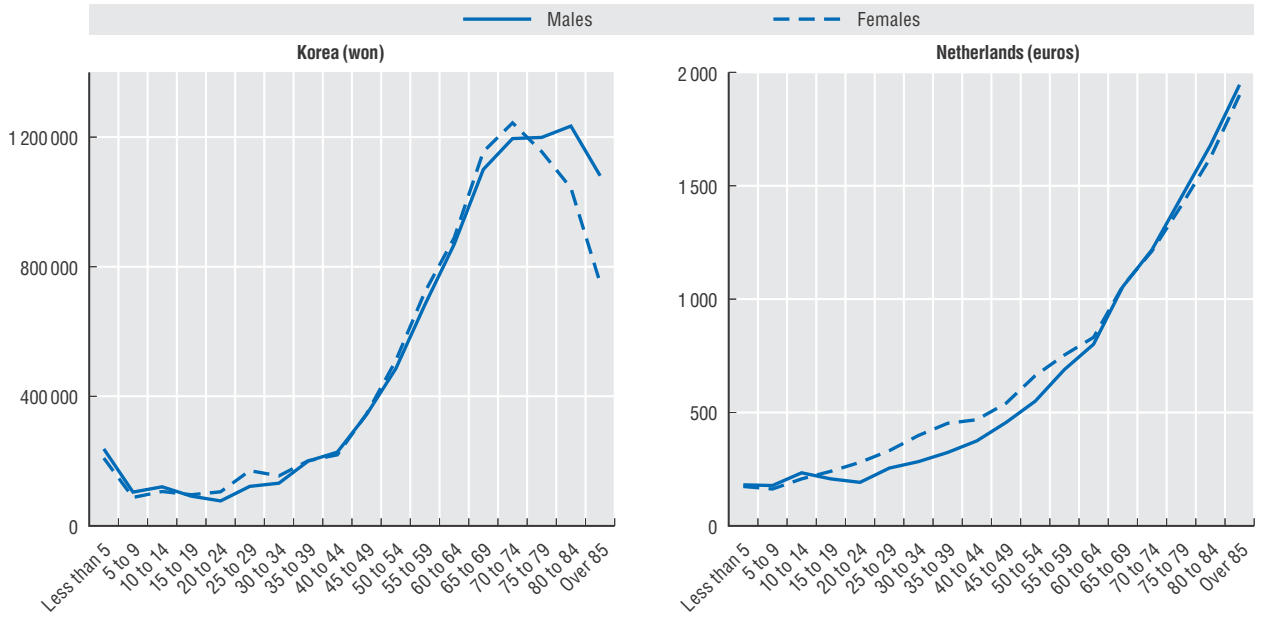
An increasing demand for pharmaceuticals and new treatment opportunities push pharmaceutical spending up

The quantity of drugs consumed has increased over time in many therapeutic classes. Between 2000 and 2013, among countries for which data are available, the use of antihypertensive, antidiabetic and anti-depressant medications nearly doubled, while the use of cholesterol-lowering drugs tripled (see indicator on "Pharmaceutical consumption" in Chapter 10). These trends reflect an increasing demand for pharmaceuticals, resulting from the rising prevalence of chronic diseases, population ageing, changes in clinical practices and coverage extensions, as well as new treatment opportunities.

The prevalence of many chronic diseases, such as cancer, diabetes and mental illness has increased, leading to an increased demand for medical treatments. Improvements in diagnosis, leading to earlier recognition of conditions and earlier treatment with medicines, as well as the development of more medicines (both prescribed and OTC) to treat common conditions have also contributed to increase the consumption of medicines.

Population ageing also increases the demand for pharmaceutical treatments. With age, the tendency to develop health conditions which require some kind of medication increases. As shown in Figure 2.7 for Korea and the Netherlands, per capita spending on pharmaceuticals increases rapidly with age.

Figure 2.7. **Per capita spending on retail pharmaceuticals by age, Korea and the Netherlands, 2011**



Source: OECD Database on Expenditure by Disease, Age and Gender (unpublished).

StatLink http://dx.doi.org/10.1787/888933280694

New and innovative drugs expand treatment options and increase treatment costs. New drugs can be new chemical entities or new formulations of existing drugs. Both categories may increase treatment options, for instance, for previously unmet needs or for new population targets (e.g. children), increasing the quantity of drugs consumed. While the approval of new drugs in existing market segments can increase competition and lead to potential savings, usually new drugs offering therapeutic advantages for patients are priced higher than their competitors and contribute significantly to pharmaceutical spending growth.

In recent years, the proliferation of specialty pharmaceuticals with high prices, in particular oral cancer drugs and immune modulators,[3] has played an increasing role in pharmaceutical spending growth (Express Scripts, 2015; Trish et al., 2014). In the United States, specialty drugs represented just 1% of total prescriptions but accounted for 25% of total prescription drug spending in 2012 (Express Scripts, 2015).

Changes in clinical practice guidelines also influence the consumption of pharmaceuticals upward. Updated guidelines have often recommended earlier treatments, higher dosages or longer treatment durations for secondary prevention or management of chronic diseases, leading to increases in volume consumed. This is the case for instance for guidelines for cholesterol-lowering drugs (e.g. statins), one of the fastest-growing therapeutic classes of prescription drugs all over the world. Prescription guidelines have been updated several times since the end of the 1990s, recommending wider screening and lower lipid level targets as an indication for prescription in Canada, the United Kingdom and the United States (CIHI, 2012; ACC/AHA, 2014; NICE, 2014).

In a few countries, *coverage expansion* has contributed to pharmaceutical spending growth. In the United States, Medicare Part D was introduced in 2006 and the Affordable Care Act was implemented in 2014, contributing to a substantial reduction in the number of people uninsured. In Korea, with the establishment of the National Health Insurance

(NHI) in 1989 and successive steps in coverage expansion, pharmaceutical spending increased rapidly – at a rate of more than 10% each year on average between 2000 and 2004 (Yang et al., 2008) and continued to grow since then, albeit at a slower rate.

Cost-containment policies and patent losses have put downward pressure on spending growth

Pharmaceutical policies have the potential to influence spending trends and the efficiency (cost-effectiveness) of pharmaceutical spending. In recent years, and in particular after the economic crisis in 2008, OECD countries have implemented or strengthened a number of cost-containment policies (Table 2.1).

Table 2.1. **Pharmaceutical cost-containment policies introduced since 2008 in a selection of OECD countries**

Policies	Examples	Extent of implementation
Pricing policies	One-off cut in ex-factory prices of on-patent medicines	Austria, Belgium, Czech Republic, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Switzerland, United Kingdom
	Implementation of external price referencing or change in the method or basket of countries	Greece, Portugal, Slovak Republic, Spain, Switzerland
	Reduction in value-added tax (VAT) rates	Austria, Czech Republic, Greece
	Reduction of mark-ups for distributors	Czech Republic, Estonia, Greece, Hungary, Ireland, Portugal, Spain
	Increase of rebates paid by manufacturers or distributors	Germany
	Extra-ordinary price reviews	Greece, Ireland, Portugal, Slovak Republic, Spain, Switzerland
	Pressure on prices of branded medicines (e.g. group purchasing or negotiation)	Canada
Reimbursement policies	Change in the reference price system (max. reimbursement price by cluster)	Estonia, Greece, Ireland, Portugal, Slovak Republic, Spain
	Delisting of products	Czech Republic, Greece, Ireland, Portugal, Spain
	Increase in cost-sharing	Austria, Czech Republic, Estonia, France, Greece, Ireland, Italy, Portugal, Slovenia, Slovak Republic, Spain, Sweden
	Introduction of health-technology assessment (HTA) to inform coverage/pricing decisions	Germany
	Managed-entry agreements	Belgium, Italy, United Kingdom
Policies to exploit the potential of off-patent drugs	Implementation of voluntary or mandatory International Non-proprietary Name (INN) prescribing	Belgium, Estonia, France, Italy, Luxembourg, Portugal, Slovak Republic, Spain
	Incentives for physicians to prescribe generics	Belgium, France, Greece, Hungary, Japan
	Incentives for pharmacists to dispense generics	Belgium, France, Ireland, Japan
	Incentives and information for patients to purchase generics	Austria, Estonia, France, Iceland, Ireland, Luxembourg, Portugal, Spain
	Pressure on generic prices (e.g. tendering, price cuts)	Canada, France, Greece, Portugal

Source: Belloni et al. (forthcoming), complemented by Thomson et al. (2014) on cost-sharing policies.

Since 2008, price cuts have been very common. At least one third of OECD countries implemented measures to reduce regulated prices of pharmaceuticals. They most often imposed cuts on ex-factory prices of on-patent and/or generic drugs (e.g. Greece, Ireland, Portugal and Spain), but many of these countries also reduced distribution margins at least for some categories of medicines. Germany increased temporarily the mandatory rebates imposed on pharmaceutical companies from 6% to 16% between 2010 and 2013. In April 2014, the mandatory rebate was set at 7% for all medicines except generics. In Canada, several provinces and territories entered in joint price negotiations for brand-name drugs covered by public plans. Finally, five countries changed VAT rates imposed on

medicine, either to reduce pharmaceutical spending (e.g. Austria, Czech Republic and Greece) or to increase public revenues (e.g. Estonia, Portugal) resulting in increased spending.

Greece, Portugal, the Slovak Republic, Spain and Switzerland reformed their *external reference price system*, expanding or reducing the basket of countries used for international benchmarking or revising the method for setting prices. For example, the Slovak Republic included Greece in the basket of benchmarked countries in 2010.

A range of policy measures have *shifted some of the burden of pharmaceutical spending to private payers* (households or complementary private insurance). These rarely took the form of delisting products (i.e. excluding them from reimbursement), with the notable exceptions of Greece, where 49 medicines were delisted after a price review in 2011, Czech Republic, Ireland, Portugal and Spain. At least a dozen of countries introduced or increased user charges for retail prescription drugs (Austria, Czech Republic, Estonia, France, Greece, Ireland, Italy, Portugal, Slovak Republic, Slovenia, Spain and Sweden) (see Thomson et al., 2014; and Belloni et al., forthcoming).

Some countries decided *to give a greater role to health technology assessment (HTA)* in their reimbursement and/or pricing process. In Germany, for instance, a new law, which took effect in January 2011, introduced a systematic and formal assessment of the "added therapeutic benefit" of new medicines after market entry to allow negotiation of a reimbursement price where needed. Expected savings for health insurance funds are up to several million Euros for some individual products (Henschke, 2013).

In parallel, many OECD countries have introduced or expanded the use of *managed entry agreements* (MEAs), which are arrangements between the manufacturer and the payer that allow coverage of drugs subject to defined conditions. Managed-entry agreements cover a wide range of contractual arrangements, which can be just financial or performance-based (i.e. reimbursement and pricing conditions are linked to observed performance of a product in real life). They take the form of price-volume agreements, coverage with evidence development, performance-based outcome guarantees, patient access scheme, etc. Their implementation varies across countries. The United Kingdom, Italy, Germany and Poland have taken the lead in using these arrangements (Ferrario and Kanavos, 2013). In Italy, the amounts recouped by the government from manufacturers through performance-based arrangements are modest and represent 5% of total expenditure for the relevant indications. This is due, at least partly, to high administrative and management costs of the scheme (Garattini et al., 2015, Navarria et al., 2015, van de Vooren et al., 2014). Their impact in other jurisdictions has not yet been evaluated.

Since the onset of the economic crisis, several countries have *strengthened their generic policies* (see Table 2.1 and Figures 10.12 and 10.13 in Chapter 10). While no formal evaluation is available, these policies – associated with the "patent cliff" – have certainly contributed to the significant increase in the generic market share observed over the past decade in most countries.

From the mid-2000s, *a number of blockbuster drugs lost patent protection*, contributing to the decline of pharmaceutical spending growth. Several products worth more than USD 30 billion a year in US sales lost their patents in 2011-12, among which Plavix® (antiplatelet agent), Lipitor® (anti-cholesterol) and Actos® (diabetes), which accounted together for nearly USD 15 billion in sales (Managed Care, 2011).

Patent expiries offer huge opportunities to make savings without affecting the quality of care. In the United States, for instance, where the generic market is very dynamic, the

price of a generic drug is on average 80 to 85 % lower than that of the brand name product. In 2012, 84% of all prescriptions filled in the United States were for generic drugs (IMS Institute for Healthcare Informatics, 2013, see also indicator on "Share of generic market" in Chapter 10).

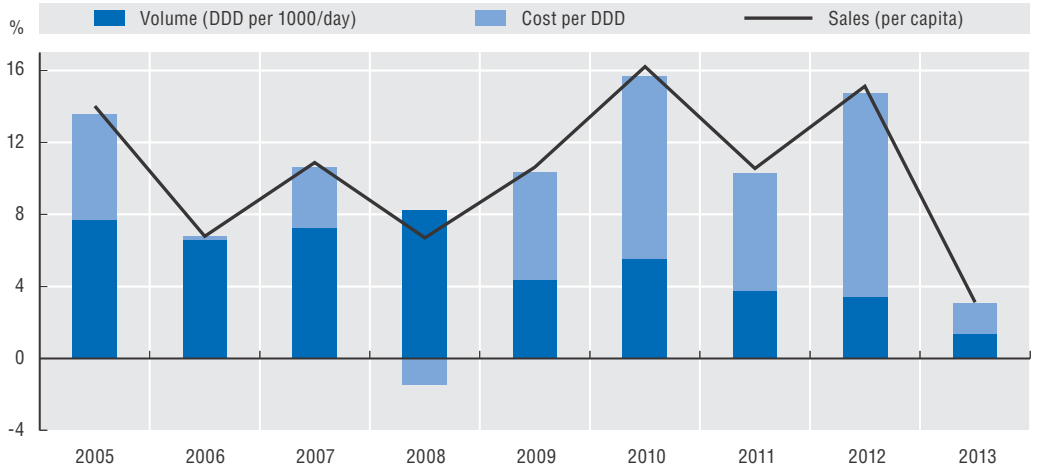
Biosimilars can also lead to significant savings, although the potential is perhaps not as high as with generics of small molecules, due to longer and costlier development and production costs. Entry barriers are higher: Europe established a pathway for the approval of biosimilars in 2005, Japan approved biosimilars' regulation in 2009 and Korea in 2010. The United States approved the legislative framework for licensing follow-on biologic products in 2010, but the FDA only recently approved the first biosimilar in March 2015. In addition, countries' regulations often restrict market growth potential and price competition. In many countries, prescribing by International Non-proprietary Names (INN) is not allowed, patients cannot be switched to a biosimilar and substitution by the pharmacist is not allowed (European Biopharmaceutical Enterprises, 2015).

Drivers of spending growth vary across therapeutic areas

All the drivers of spending growth listed before interact differently across therapeutic classes, leading to contrasting trends.

In the case of antidiabetic medicines for instance, where use has been steadily increasing in line with the increasing prevalence of type-2 diabetes, the existence of long-standing treatments with generic versions resulted in a 'cost of treatment' which remained relatively stable over a number of years. However, the arrival of new and more expensive treatments in recent years significantly increased the average daily treatment cost. The shift from existing medications to new drugs has therefore been the main contributor to pharmaceutical spending growth in this therapeutic class in the recent period, as shown for Denmark between 2005 and 2013 in Figure 2.8.

Figure 2.8. **Annual growth in sales, volumes and cost per defined daily dosage (DDD) of antidiabetic drugs, Denmark, 2005-13**

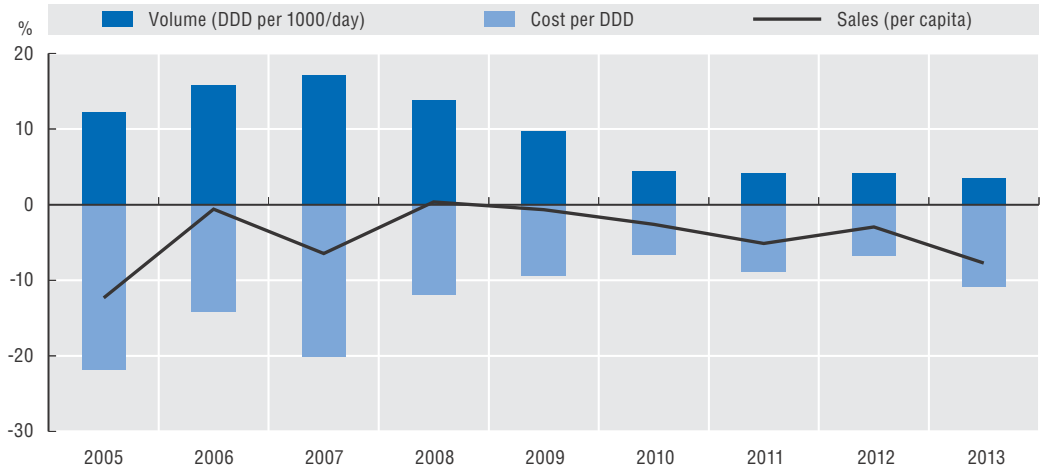


Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280701

By contrast, in the class of cholesterol lowering medications, the expiry of the patent for some of the top selling statins in the mid-2000s and the introduction of generics has led to a pattern of decreasing treatment costs in many countries in recent years. For example, costs per defined daily dose (DDD) typically fell by more than 10% per year, on average, since 2005 in Germany (Figure 2.9).

Figure 2.9. **Annual growth in sales, volumes and cost per defined daily dosage (DDD) of lipid-lowering drugs, Germany, 2005-13**



Source: OECD Health Statistics 2015.

StatLink http://dx.doi.org/10.1787/888933280715

The high price of new drugs has been the main driver of spending growth in other therapeutic areas.

In the area of **cancer** for instance, the price of specialty medicines has steadily increased, especially since 2000. In the United States, the median monthly price of cancer treatment for Medicare patients has increased from around USD 5 000 in 2000-05 to around USD 10 000 in 2010-15.[4] In 2012, 12 out of 13 cancer-approved drugs cost more than USD 100 000 per year (Light and Kantarjian, 2013). These price increases are observed everywhere. In Australia, the average reimbursement price per anticancer prescription drug more than doubled in real terms between 1999-2000 and 2011-12, while the price of all other prescription drugs only increased by about one-third during that period (Karikios et al., 2014).

Treatment costs for **multiple sclerosis and pulmonary hypertension** are also very high and increasing (Lotvin et al., 2014). The first generation of multiple sclerosis therapies, originally costing USD 8 000 to USD 11 000 per year in 1993-96, now cost about USD 60 000 per year, reflecting an increase five to seven times higher than prescription drug inflation over the period 1993-2013. Newer therapies entered the market with a cost 25%-60% higher than existing ones (Hartung et al., 2015).

In 2013 and 2014, new treatments for **hepatitis C** became available, posing an unprecedented challenge to many OECD countries. These medicines represent a great medical advancement: they are much better tolerated than previous treatments and reach cure rates of 95% or higher for sub-groups of patients with hepatitis C. For these target groups, these treatments are even cost-effective. The immediate budget impact of treating the entire population affected proved to be unaffordable for OECD countries, due to high prices and high prevalence of the disease. In reaction, many countries sought to reach

agreements with manufacturers to limit the budget impact and to recommend priority use for the most severely affected patients, generating frustration for physicians, patients and decision makers alike.

Orphan drugs[5] also typically have high prices. The median cost per patient and per year is 19 times higher for an orphan drug than for a non-orphan drug (EvaluatePharma, 2014). The premium for ultra-rare indications is very high. The number of newly approved molecular entities classified as orphans has been increasing since the implementation of policies designed to encourage their development and medicines with orphan designation now account for one-third of new chemical entities approved by the FDA (IMS Institute for Healthcare Informatics, 2014).

New challenges in the pharmaceutical market

Changes in the pharmaceutical market, with the increased availability of high-cost drugs, suggest that future pharmaceutical spending growth may pick up again, instead of continuing its recent path, at least in some countries. Countries will face a number of challenges to make new high-cost medicines available to patients, contain spending growth and ensure value for money.

The IMS Institute for Healthcare Informatics predicts worldwide pharmaceutical sales[6] to be 30% higher in 2018 than in 2013 (IMS Institute for Healthcare Informatics, 2014). The average annual growth rate is slightly higher than in previous years due to a smaller number of patent expiries and a higher number of new specialty drugs. Emerging markets, in addition to the United States, are expected to contribute most of this growth, while European markets will make more modest contributions.

The United States is the largest pharmaceutical market, accounting for one third of global sales, and is expected to continue to grow. The IMS Institute for Healthcare Informatics predicted peaks in US spending growth of 14% in 2014 and 8% in 2015, followed by annual growth rates of 4-5% until 2018. According to CMS projections, prescription drug spending is expected to grow at an average annual rate of over 6% per year between 2016 and 2024 (Keehan, 2015).

The largest European markets are predicted to experience lower levels of growth. According to the IMS Institute for Healthcare Informatics, the top 5 European markets (Germany, France, the United Kingdom, Italy and Spain) will see annual growth rates of between 1 and 4% during the period 2014 to 2018. Pharmaceutical spending in the United Kingdom and Germany should experience the highest growth, while France and Spain will have zero to negative growth (IMS Institute for Healthcare Informatics, 2014). In an earlier study, Urbinati et al. (2014) had predicted a decrease in pharmaceutical spending in all European countries studied – except Poland – between 2012 and 2016.

Specialty drugs will continue to be a major contributor to pharmaceutical spending growth. Since 2010, one out of every two FDA approvals is a specialty drug and, as the population ages, the number of patients eligible for specialty drugs such as treatments for rheumatoid arthritis and cancer is increasing (Lotvin et al., 2014). Increased spending on these drugs is projected to account for 53% of total growth in North America between 2013 and 2018, while in Europe it is expected to account for 94% of the (much slower) growth over the same period (IMS Institute for Healthcare Informatics, 2014). The huge contribution of specialty medicines to pharmaceutical spending growth is explained by the fact that there will be more of them, priced at very high levels, with more patients needing them.

Cancer is the therapeutic area with the highest expected spending growth, driven by new drug approvals and the increasing incidence of cancer worldwide (IMS Institute for Healthcare Informatics, 2014). Many orphan drugs approvals are also expected in the years to come. Their predicted budget impact by 2020 in several European countries ranges from 4-5% to 9-11% of pharmaceutical spending, depending on the success rate of products in development (Schey et al., 2011; Hutchings et al., 2014). Another study estimated that the share of orphan drugs in the worldwide pharmaceutical market for non-generic prescription drugs is expected to increase from 14% in 2014 to 19% in 2020 (EvaluatePharma, 2014).

High prices of drugs are an important barrier to access, and this does not concern developing countries only. The results of a recent survey conducted among policy makers (reported in WHO, 2015) show that policy makers in European countries consider the high price of drugs as the main challenge to provide access to new medicines given the budgetary constraints they have. Many drugs, including drugs providing important benefits, are not available at all, or not accessible to all patients who need them. For example, as already noted, a lot of countries restricted access to the new hepatitis C treatments to the most severely affected patients and a few countries have not yet reimbursed the new medicines at all (e.g. Poland).

A further challenge is that high prices of new medicines do not always appear to be justified by high clinical benefits (Howard et al., 2015; Light and Kantarjian, 2013). For example, many new cancer drugs provide small added benefits over existing ones. Among the 12 new anticancer drugs approved by the FDA in 2012, only one provides survival gains that exceed two months. Sometimes cancer drugs are used for several indications with varying levels of efficacy, but the price is usually unique (Bach, 2014). Examining the launch prices of cancer drugs approved between 1995 and 2013, Howard et al. (2015) observed that patients and insurers paid USD 54 100 for a year of life gained in 1995, USD 139 100 a decade later and USD 207 000 in 2013 for the same benefit (in constant 2013 dollars, adjusting earlier costs for inflation).

Similarly, many orphan drugs do not pass the test of cost-effectiveness. In the Netherlands, medicines used for the treatment of Pompe's and Fabry's disease have been assessed to cost several million Euros per QALY gained, which triggered a discussion about the opportunity to maintain health insurance coverage of these products. However, they were not delisted, since these medicines are used for severe diseases for which no alternative treatment is available (van den Brink, 2014).

Conclusions

Retail pharmaceutical spending has increased at a slower pace than before or even decreased in recent years due to patent losses of several blockbusters and cost-containment policies, while pharmaceutical spending in hospital has increased in most countries for which data are available.

New high-cost specialty drugs are coming to the market and are expected to account for 50% or more of pharmaceutical spending growth in the near future. Their increasing availability, combined with population ageing, suggests that pharmaceutical expenditure may pick up again after the recent stagnation or decline.

Pharmaceutical spending growth is not necessarily a problem in itself. Medicines play an important role in the management of a number of chronic diseases (e.g. diabetes, asthma) and, in some circumstances, they prevent complications and the use of costly health care services. However, the increasing availability and sky-rocketing prices of new

medicines, especially in cancer, hepatitis C, pulmonary hypertension and multiple sclerosis, or for rare diseases, have raised a number of questions about accessibility, budget impact and the legitimacy of such high prices.

While some of these high-price medicines bring great benefits to patients, others provide only marginal improvement of patients' outcomes. In reality, prices seem more determined by market conditions (high unmet medical need, small population target) than by any conception of value in terms of clinical or wider benefits for patients. Many of these medicines are not cost-effective, according to standard thresholds. This challenges both the static and dynamic efficiency of pharmaceutical spending and raises questions about the best ways to align societies' interests with those of pharmaceutical companies and investors.

Notes

1. *Retail pharmaceuticals* are delivered to patients via community pharmacies and other retail outlets. Pharmaceuticals are also consumed in other care settings – primarily the *hospital* sector – where by convention the pharmaceuticals used are considered as an input to the overall service treatment and not separately accounted. That said, health accounts do allow for an additional reporting item to report a *total pharmaceutical* spending estimate covering all modes of provision. Currently only about one-third of OECD countries submit such figures.
2. Specialty medicines include most injectable and biologic agents used to treat complex conditions such as rheumatoid arthritis, multiple sclerosis and cancer and often require special handling or delivery mechanisms.
3. Biologics used in the treatment of certain types of immunologic and inflammatory diseases, including rheumatoid arthritis, psoriasis, Crohn's disease, and ulcerative colitis.
4. *https://www.mskcc.org/research-areas/programs-centers/health-policy-outcomes/cost-drugs*.
5. Orphan drugs refer to medicines developed for rare conditions. The United States and the European Union have implemented policies to encourage private investments in R&D for rare diseases (e.g. increased market exclusivity) and have consequently defined criteria to be met by a medicine to be granted an "orphan drug status". In the European Union, those criteria are: the severity of the disease; the fact that it serves an unmet need; and either prevalence below one in 2 000 or a negative expected return on investment.
6. IMS data report market sales at ex-manufacturer prices and do not reflect off-invoice discounts and rebates (IMS Institute for Healthcare Informatics, 2014). By contrast, pharmaceutical spending, as reported in the System of Health Accounts, are estimated at retail prices (including VAT) and are in principle net of off-invoice discounts and rebates. Both sets of data are not directly comparable but are expected to show more or less consistent trends.

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STAINLESS

3. HEALTH STATUS

Life expectancy at birth

Life expectancy by sex and education level

Mortality from cardiovascular diseases

Mortality from cancer

Mortality from transport accidents

Suicide

Infant mortality

Infant health: Low birth weight

Perceived health status

Cancer incidence

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Life expectancy at birth

Life expectancy at birth continues to increase steadily in OECD countries, going up on average by 3 to 4 months each year, with no sign of slowing down. These gains in longevity can be attributed to a number of factors including improved lifestyle and better education, and progress in health care.

In 2013, life expectancy on average across OECD countries reached 80.5 years, an increase of more than ten years since 1970 (Figure 3.1). Japan, Spain and Switzerland lead a large group of 25 OECD countries in which life expectancy at birth now exceeds 80 years. A second group, including the United States, Chile and a number of Central and Eastern European countries, has a life expectancy between 75 and 80 years.

Among OECD countries, Mexico had the lowest life expectancy in 2013, still slightly below 75 years. Since 2000, life expectancy in Mexico has increased more slowly than in other OECD countries, with a gain of just over a year (from 73.3 to 74.6 years) compared with an average gain of more than three years across OECD countries. The gap in longevity between Mexico and other OECD countries has therefore widened from about four years to six years between 2000 and 2013. The slow progress in life expectancy in Mexico is due to a number of factors, including harmful health-related behaviours such as poor nutrition and very high obesity rates, a lack of progress in reducing mortality from cardiovascular diseases, very high death rates from road traffic accidents and homicides, as well as persistent barriers of access to high-quality care.

In the United States, the gains in life expectancy over the past few decades have also been more modest than in most other OECD countries. While life expectancy in the United States used to be one year *above* the OECD average in 1970, it is now more than one year *below* the average. Many factors can explain these lower gains in life expectancy, including: 1) the highly fragmented nature of the US health system, with relatively few resources devoted to public health and primary care, and a large share of the population uninsured; 2) health-related behaviours, including higher calorie consumption per capita and greater obesity rates, higher consumption of prescription and illegal drugs, more deaths from road traffic accidents and higher homicide rates; and 3) adverse socio-economic conditions affecting large segments of the US population, with higher rates of poverty and income inequality than in most other OECD countries (National Research Council and Institute of Medicine, 2013).

Although the life expectancy in partner countries such as India, Indonesia, Brazil and China remains well below the OECD average, these countries have achieved considerable gains in longevity over the past decades, with the level converging rapidly towards the OECD average. There has been much less progress in countries such as South Africa (due mainly to the epidemic of HIV/AIDS), and the Russian Federation (due mainly to the impact of the economic transition in the 1990s and a rise in risk increasing behaviours among men, notably rising alcohol consumption).

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 3.2). There are also notable differences in life expectancy between countries with similar income per capita. For example, Japan, Spain and Italy have higher, and the United States and the Russian Federation have lower life expectancies than would be predicted by their GDP per capita alone.

Figure 3.3 shows the relationship between life expectancy at birth and current health expenditure per capita (excluding capital investments) across OECD, candidate and partner 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, Spain and Korea stand out as having relatively high life expectancies, and the United States and the Russian Federation relatively low life expectancies, given their levels of health spending.

Variation in life expectancy across countries can be explained by many factors beyond national income and total health spending.

Definition and comparability

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

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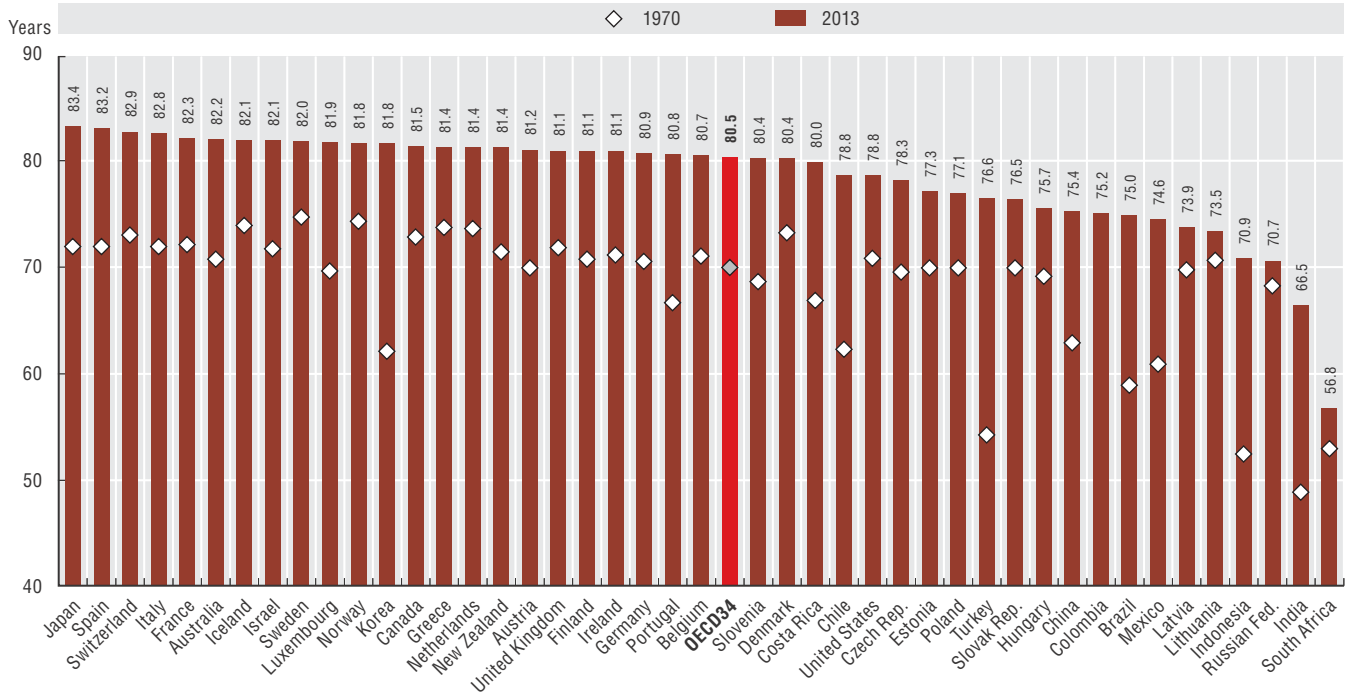
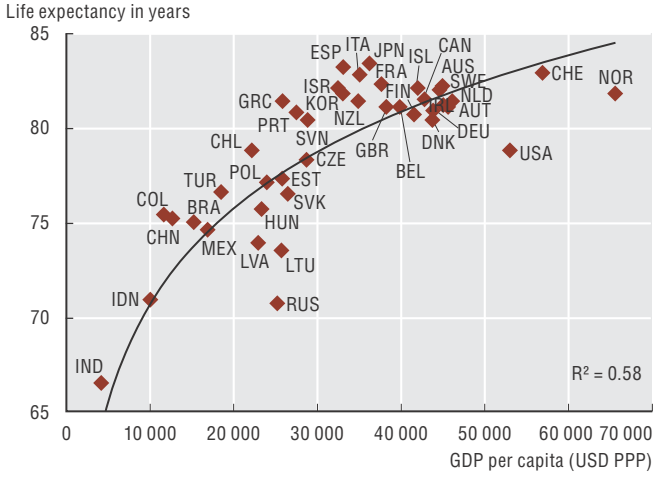
3.1. Life expectancy at birth, 1970 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280727

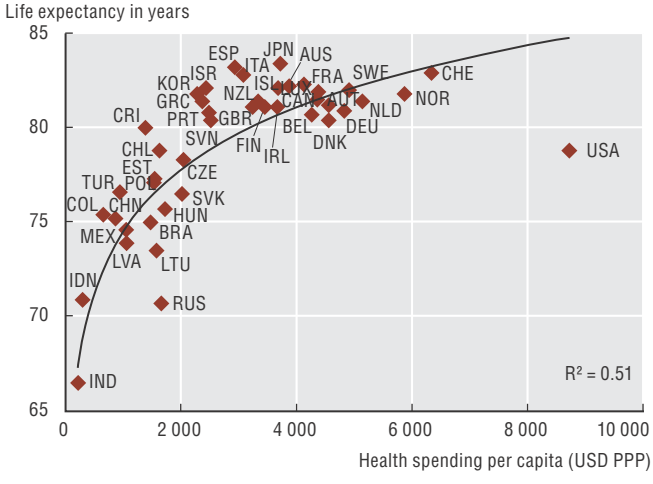
3.2. Life expectancy at birth and GDP per capita, 2013 (or latest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280727

3.3. Life expectancy at birth and health spending per capita, 2013 (or latest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280727

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Life expectancy by sex and education level

There remain large gaps in life expectancy between women and men in all OECD countries. On average across OECD countries, life expectancy at birth for women reached 83.1 years in 2013, compared with 77.8 years for men, a gap of 5.3 years (Figure 3.4).

The gender gap in life expectancy increased substantially in many OECD countries during the 1970s and early 1980s to reach a peak of almost seven years in the mid-1980s, but it has narrowed during the past 25 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, accompanied by sharp reductions in mortality rates from cardiovascular diseases among men.

In 2013, the life expectancy for women in OECD countries ranged from less than 80 years in Turkey, Hungary and Mexico to more than 85 years in Japan, Spain, France, Italy and Switzerland. Life expectancy for men ranged from less than 75 years in Mexico, Hungary, Estonia, the Slovak Republic, Poland and Turkey to over 80 years in Switzerland, Iceland, Italy, Israel, Japan, Spain, Sweden and Australia.

In the United States, the life expectancy for both women and men is now slightly shorter than the OECD average, and the gap with leading countries has been widening. The life expectancy for US men in 2013 was 4.3 years shorter than in Switzerland (up from less than three years in 1970); for US women, it was 5.4 years shorter than in Japan in 2013 (there was no gap in 1970). Possible explanations for this slower progress are provided under the indicator "Life expectancy at birth".

Among OECD countries, the gender gap in life expectancy is relatively narrow in Iceland, Israel, Sweden, the Netherlands, New Zealand and the United Kingdom (a gap of less than four years), but much larger in Estonia (around nine years), Poland (around eight years), the Slovak Republic and Hungary (around seven years).

Life expectancy in OECD countries varies not only by gender, but also by socio-economic status as measured, for instance, by education level (Figure 3.5). Higher education level not only provides the means to improve the socio-economic conditions in which people live and work, but may also promote the adoption of healthier lifestyles and facilitate access to appropriate health care. On average among 15 OECD countries for which recent data are available, people with the highest level of education can expect to live six years longer than people with the lowest level of education at age 30 (53 years versus 47 years). These differences in life expectancy by education level are particularly pronounced for men, with an average gap of almost eight years. The differences are especially large in Central and Eastern European countries (Czech Republic, Estonia, Hungary and Poland), where the life expectancy gap between higher and lower educated men is more than ten years. This is largely explained by the greater prevalence of risk factors among men, such as tobacco and alcohol use. Differences in other countries such as Portugal, Sweden, Switzerland and Italy are less pronounced.

Definition and comparability

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

To calculate life expectancies by education level, detailed data on deaths by sex, age and education level are needed. However, not all countries have information on education as part of their deaths data. Data linkage to another source (e.g. a census) which does have information on education may be required (Corsini, 2010).

References

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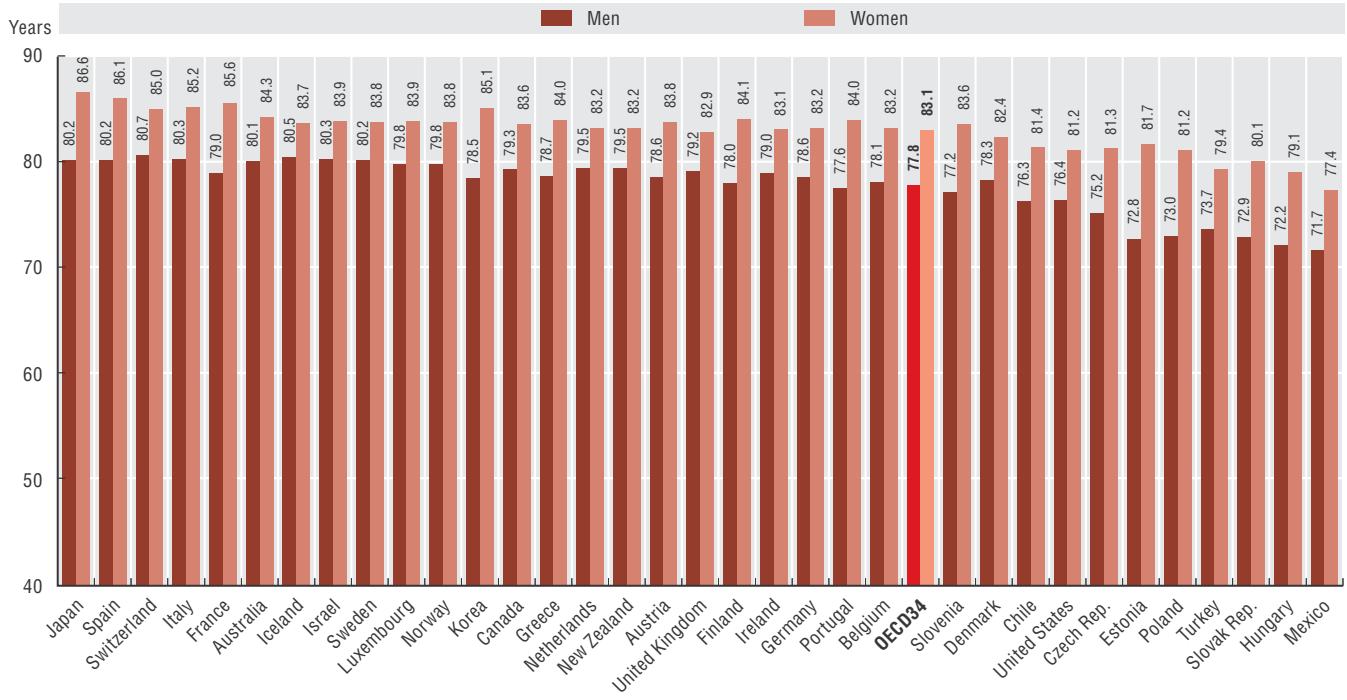
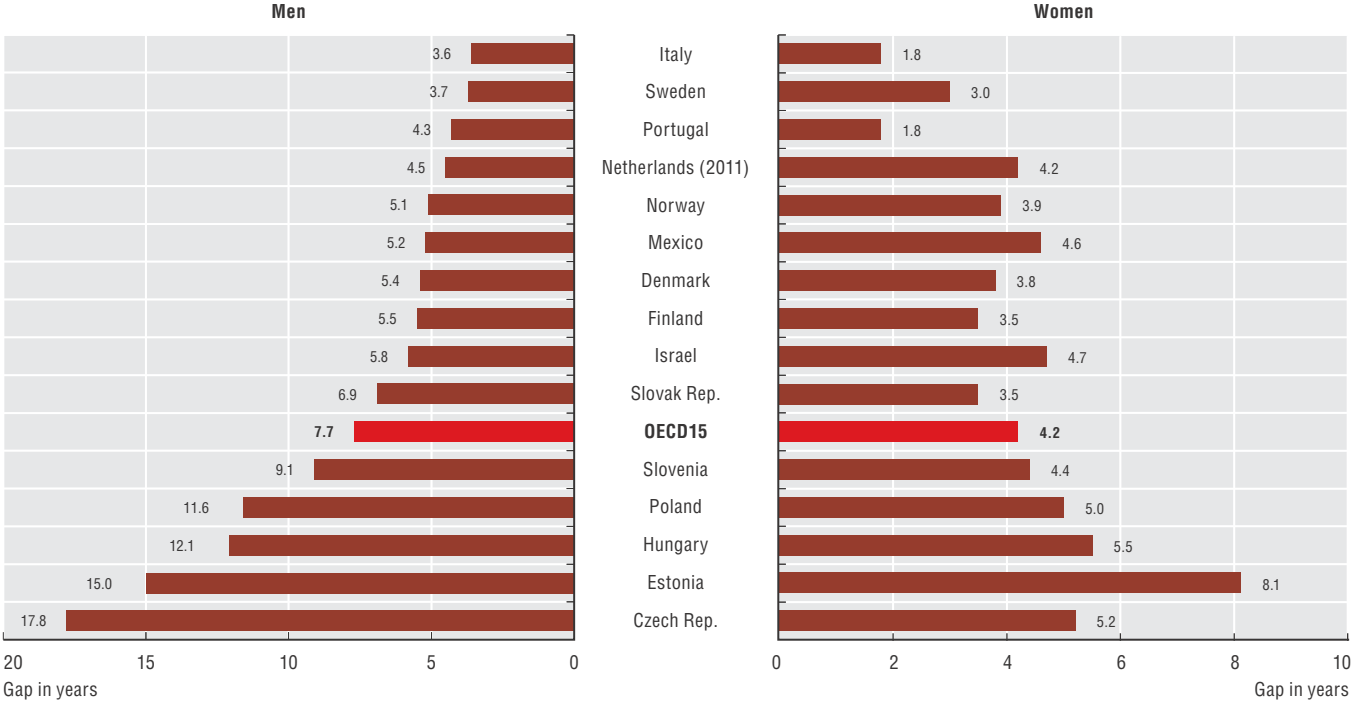
3.4. Life expectancy at birth by sex, 2013 (or latest year)



Note: Countries are ranked in descending order of life expectancy for the whole population.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280737

3.5. Gap in life expectancy at age 30 by sex and educational level, 2012 (or latest year)



Note: The figures show the gap in the expected years of life remaining at age 30 between adults with the highest level ("tertiary education") and the lowest level ("below upper secondary education") of education.
Source: Eurostat database complemented with national data for Israel, Mexico and Netherlands.

StatLink http://dx.doi.org/10.1787/888933280737

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Mortality from cardiovascular diseases

Despite substantial declines in recent decades, cardiovascular diseases remain the main cause of mortality in most OECD countries, accounting for nearly one-third (32.3%) of all deaths in 2013. Prospects for further reductions may be hampered by a rise in certain risk factors such as obesity and diabetes (OECD, 2015). Cardiovascular diseases cover a range of illnesses related to the circulatory system, including ischemic heart disease (often referred to as heart attack) and cerebrovascular diseases such as stroke.

Ischemic heart disease (IHD) 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 nearly 20% of all deaths in OECD countries in 2013. However, mortality from IHD varies considerably across countries (Figure 3.6). Central and Eastern European countries report the highest IHD mortality rates; Japan, France and Korea report the lowest rates. Across OECD countries, IHD mortality rates in 2013 were around 84% higher for men than women.

IHD mortality rates have declined in nearly all OECD countries, with an average reduction of 45% since 1990, contributing greatly to gains in life expectancy, particularly among men. The decline has been most remarkable in Denmark, the Netherlands, and Norway, where rates fell by two-thirds or more. Declining tobacco consumption contributed significantly to reducing the incidence of IHD (see Indicator "Tobacco consumption among adults" in Chapter 4), and consequently to reducing mortality rates. Improvements in medical care have also contributed to reduced mortality rates (see the indicators on "Cardiac procedures" in Chapter 6 and "Mortality following acute myocardial infarction" in Chapter 8).

In Korea, IHD mortality rates have increased substantially since 1990, although they remain low compared with nearly all other OECD countries and have started to fall after peaking in 2006. The initial rise in IHD mortality rates in Korea has been attributed to changes in lifestyle and dietary patterns as well as environmental factors at the time of birth, with people born between 1940 and 1950 facing higher relative risks. In 2006, Korea introduced a Comprehensive Plan to tackle cardiovascular diseases that encompassed prevention and primary care as well as better acute care, contributing to the reduction in mortality in recent years (OECD, 2012).

Cerebrovascular disease was the underlying cause for about 7% of all deaths in OECD countries in 2013. Cerebrovascular disease refers to a group of diseases that relate to problems with the blood vessels that supply the brain. Common manifestations of cerebrovascular disease include ischemic stroke, which develops when the brain's blood supply is blocked or interrupted, and haemorrhagic stroke which occurs when blood leaks from blood vessels into the surface of the brain. In addition to being an important cause of mortality, the disability burden from stroke and other cerebrovascular diseases is also substantial (Murray et al., 2015).

There are large variations in cerebrovascular disease mortality rates across countries (Figure 3.7). The Slovak Republic and Hungary report a cerebrovascular mortality that is more than three times higher than that of Switzerland, Canada and France, and have the highest mortality rates for both IHD and cerebrovascular disease. The high prevalence of risk factors common to both diseases (such as smoking and high blood pressure) may explain this link.

Since 1990, cerebrovascular disease mortality has decreased in all OECD countries, although to a lesser extent in Poland and the Slovak Republic. On average, the mortality burden from cerebrovascular disease has halved across OECD countries. In Estonia, Luxembourg and Portugal, the rates have been cut by at least two-thirds, although in Estonia this is partly due to a change in death recording practices with a greater recording of other related causes of death such as hypertension. As with IHD, the reduction in mortality from cerebrovascular disease can be attributed at least partly to a reduction in risk factors as well as improvements in medical treatments (see indicator "Mortality following stroke" in Chapter 8), but rising obesity and diabetes threatens progress in tackling cerebrovascular disease (OECD, 2015).

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 2010 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 cerebrovascular disease to I60-I69.

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OECD (2015), *Cardiovascular Disease and Diabetes: Policies for Better Health and Quality of Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264233010-en*.

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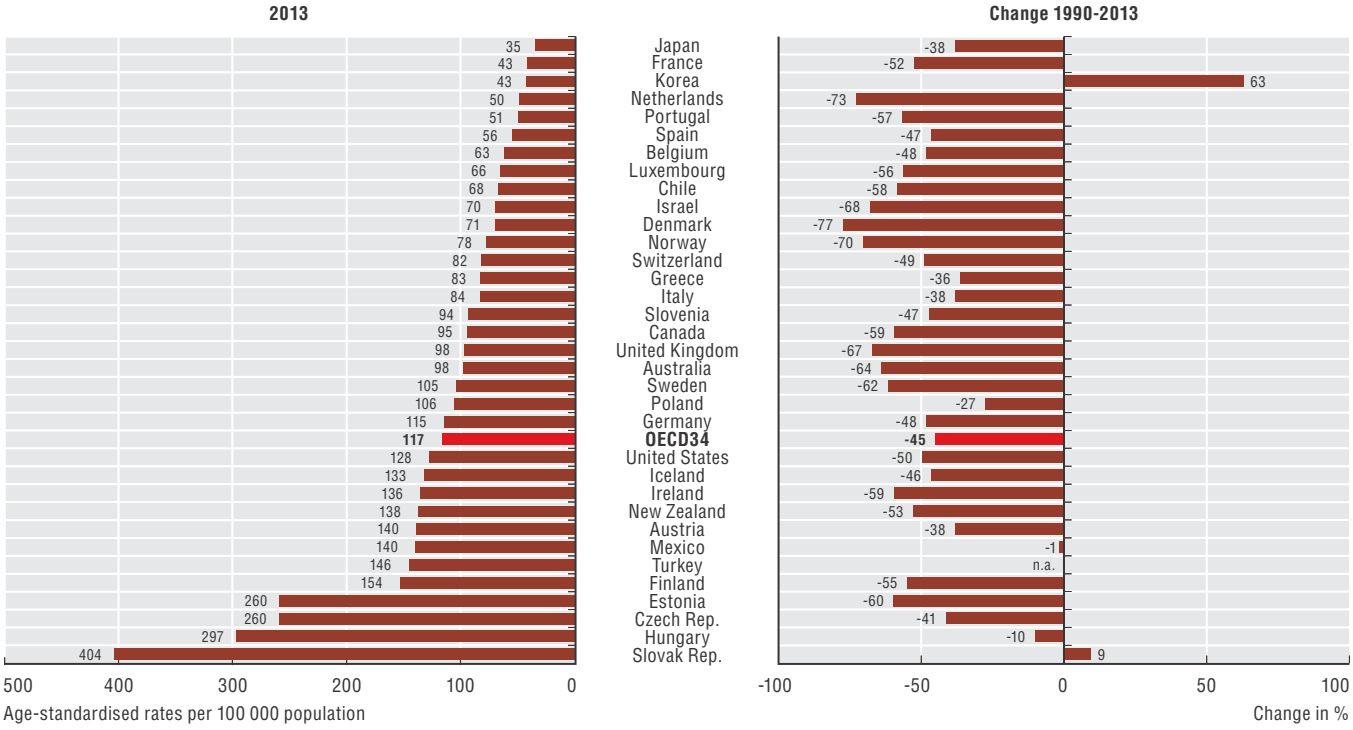
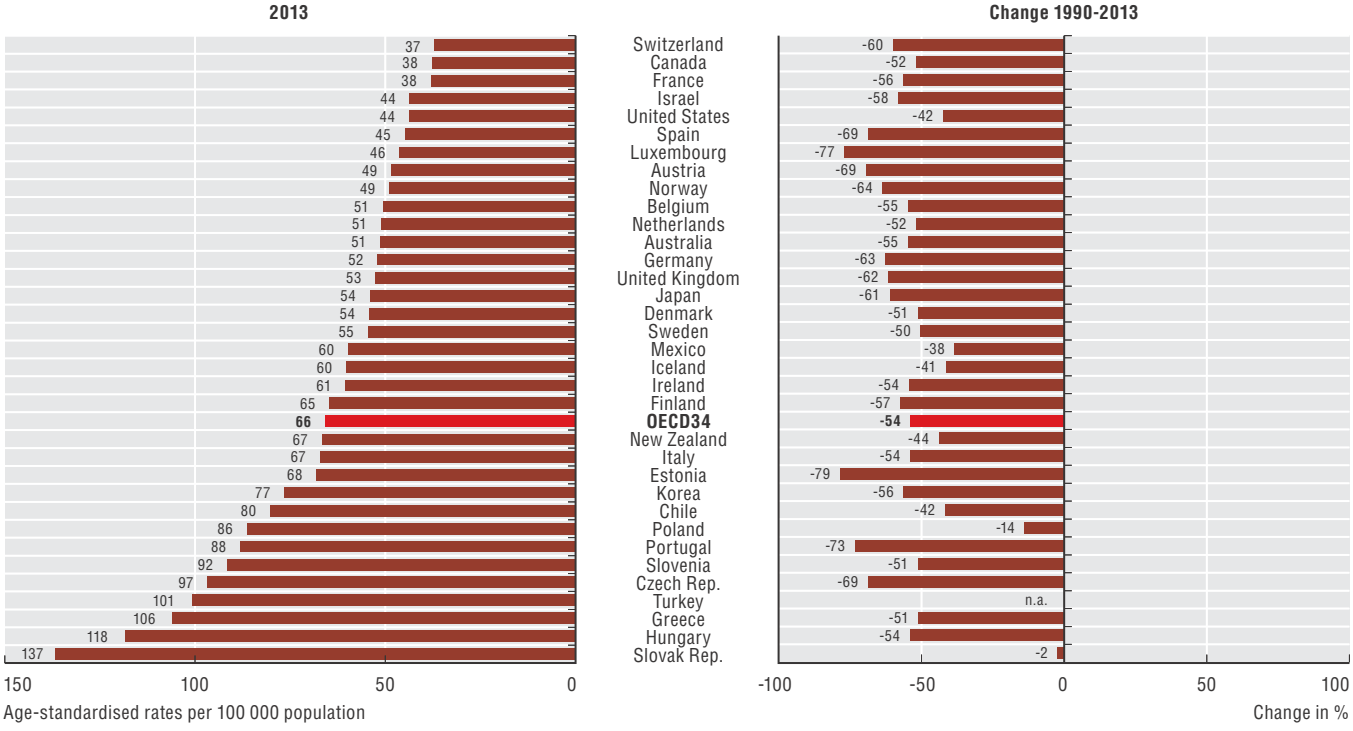
3.6. Ischemic heart disease mortality, 2013 and change 1990-2013 (or nearest years)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280741

3.7. Cerebrovascular disease mortality, 2013 and change 1990-2013 (or nearest years)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280741

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Mortality from cancer

Cancer is the second leading cause of mortality in OECD countries after cardiovascular diseases, accounting for 25% of all deaths in 2013, up from 15% in 1960. In a number of countries, cancer is now the most frequent cause of death. The rising share of deaths due to cancer reflects the fact that mortality from other causes, particularly cardiovascular diseases, has been declining more rapidly than mortality from cancer.

There are more than 100 different types of cancers, with most named for the organ in which they start. For a large number of cancer types, the risk of developing the disease rises with age. While genetics is a risk factor, only about 5% to 10% of all cancers are inherited. Modifiable risk factors such as smoking, obesity, lack of exercise and excess sun exposure, as well as environmental exposures, explain up to 90-95% of all cancer cases (Anand et al., 2008). Prevention, early detection and treatment remain at the forefront in the battle to reduce the burden of cancer (OECD, 2013).

In 2013, the average rate of mortality attributable to cancer across OECD countries was just over 200 per 100 000 population (Figure 3.8). Mortality due to cancer was lowest in Mexico, Turkey, Finland, Switzerland and Japan, with rates less than 180 per 100 000 population. Hungary, Slovenia, the Slovak Republic and Denmark bear the highest cancer mortality burden, with rates in excess of 240 per 100 000 population.

Mortality due to cancer is consistently higher for men than for women in all countries. The gender gap is particularly wide in Korea, Turkey, Estonia, Spain and Portugal, with rates among men more than twice those for women. This gender gap can be explained partly by the greater prevalence of risk factors among men, notably smoking rates.

Among men, lung cancer imposes the highest mortality burden, accounting for 26% of all cancer-related deaths (Figure 3.9). In Turkey, Greece, Poland, Hungary and Belgium, this percentage was over 30%. For women, lung cancer accounted for 17% of all cancer-related deaths. In many countries, lung cancer mortality rates for men have decreased over the last 20 years. But lung cancer mortality has risen for women in several countries such as France and Spain where it has more than doubled since 1990. These conflicting trends are, to a large degree, explained by the high number of females who started smoking several decades later than males (in the 1980s and 1990s).

Breast cancer is the second most common cause of cancer mortality in women in many OECD countries. While there has been an increase in the incidence of breast cancer over the past decade, mortality has declined in most countries due to earlier diagnosis and better treatment. Mortality from breast cancer increased somewhat in Korea and Japan, although the rates there remained the lowest in 2013. Mortality rates from breast cancer in 2013 were highest in Denmark, Hungary, Belgium, Ireland, Slovenia and the Netherlands (see indicator "Screening, survival and mortality for breast cancer" in Chapter 8).

Colorectal cancer is a major cause of cancer mortality among both men and women (second-highest cause of cancer mortality in men and third in women). In 2013, colorectal cancer mortality was lowest in Mexico and Turkey, and highest in Hungary and the Slovak Republic (see indicator "Survival and mortality for colorectal cancer" in Chapter 8).

Prostate cancer has become the most common cancer among men in many OECD countries, particularly among men aged 65 years and over. Mortality from prostate cancer remains lower than for lung cancer in all countries except in Chile and Mexico, where it is the leading cause of cancer deaths in men, and in some Nordic countries (Iceland, Norway and Sweden) where mortality from prostate and lung cancer are almost equal. Mortality rates from prostate cancer in 2013 were lowest in Japan and Korea, and highest in Estonia and Iceland.

In most OECD countries, cancer-related mortality rates have fallen since 1990. On average, rates fell by 17% between 1990 and 2013. Substantial declines in mortality from stomach cancer, colorectal cancer, lung cancer for men, breast, cervical and ovarian cancer for women, as well as prostate cancer for men contributed to this reduction. However, these gains were partially offset by increases in the number of deaths due to cancer of the liver, skin and pancreas for both sexes, as well as lung cancer for women.

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 2010 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. The international comparability of cancer mortality data can be affected by differences in medical training and practices as well as in death certification across countries.

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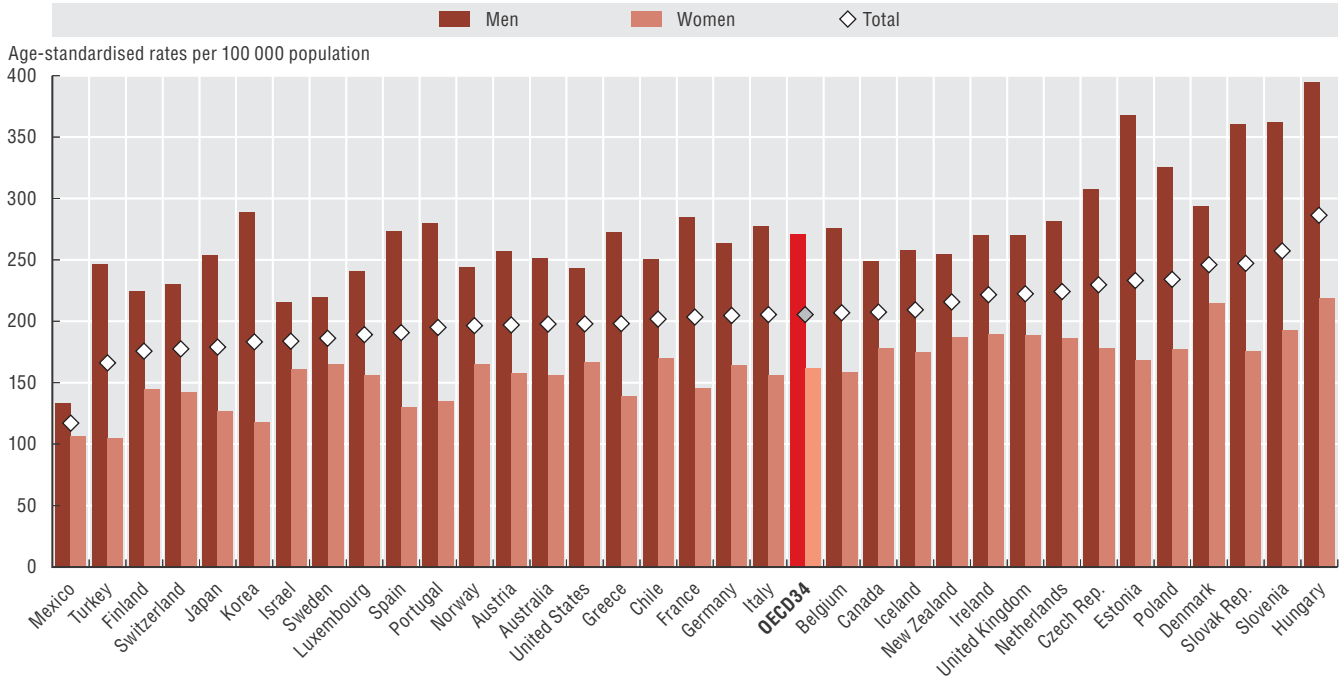
3.8. Cancer mortality, 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

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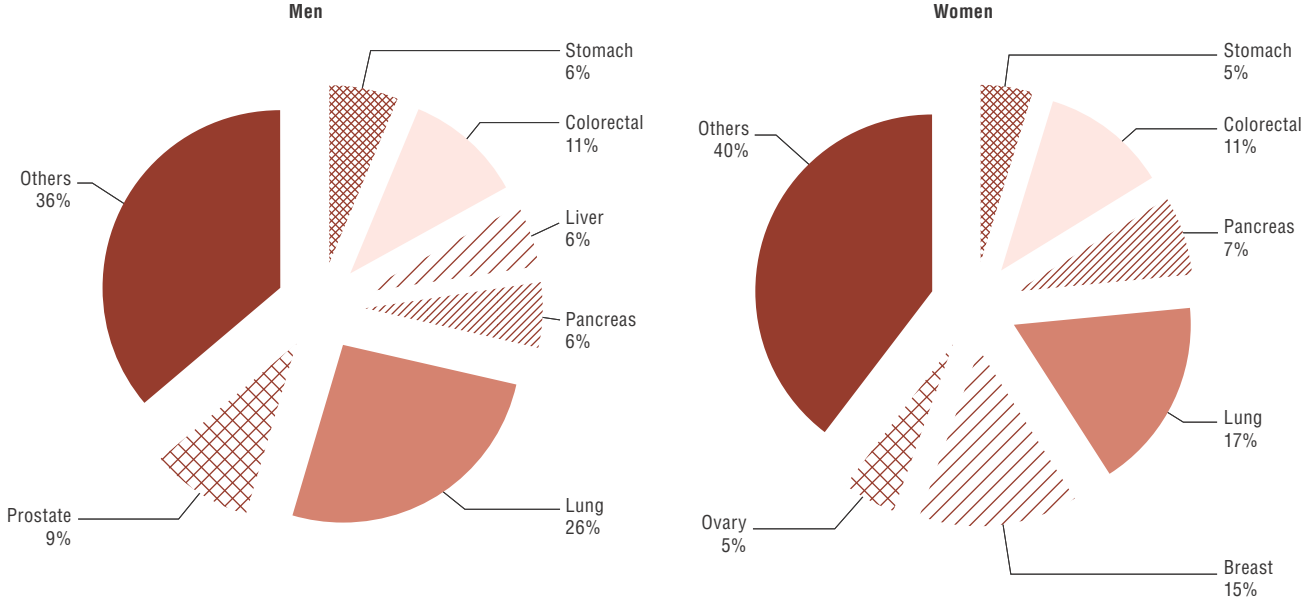
3.9. Main causes of cancer deaths among men and women in OECD countries, 2013



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280758

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Mortality from transport accidents

Injuries from transport accidents – most of which are due to road traffic – are a major public health problem in OECD countries, causing the premature deaths of more than 100 000 people in 2013 (more than 1% of all deaths). Almost three-quarters of these deaths occurred among men. In addition, more than 5 million people were injured in road accidents. The direct and indirect financial costs of transport accidents are substantial, with estimates ranging from 1 to 3% of GDP annually (OECD/ITF, 2015).

Most fatal traffic injuries occur in passenger vehicles, although other road users also face substantial risks. In Korea, Japan, Israel and Poland, pedestrians account for over one third of all road user fatalities. Cyclists in the Netherlands and motorcyclists in Greece, Italy and France account for over one fourth of road traffic accident deaths in these countries (OECD/ITF, 2015).

The average OECD mortality rate due to transport accidents was 7 per 100 000 population in 2013 (Figure 3.10). There is considerable variation between countries with transport accidents claiming more than five times as many lives per 100 000 population in Mexico compared to the United Kingdom and Sweden. Mortality rates from road transport accidents were also relatively high in Korea, Chile and the United States.

Much transport accident injury and mortality is preventable. Road safety for car occupants has increased greatly over the past decades in many countries through improvements of road systems, education and prevention campaigns as well as vehicle design. In addition, the adoption of new laws and regulations and the enforcement of these laws to improve compliance with speed limits, seatbelt use and drink-driving rules have had a major impact on reducing the burden of road transport accidents.

As a result, deaths due to transport accidents have decreased in almost all countries over the last few decades. Since 1990, the average OECD mortality rate due to transport accidents has fallen by more than 70% (Figure 3.11). These gains are even more impressive when considering the increase in the number of vehicle kilometers travelled over this period (OECD/ITF, 2015). Chile is the only country where deaths due to transport accidents have increased. In 1990, Chile's mortality rate was comparatively low, but then rose during the 1990s as the economy and the number of vehicles grew and has remained relatively high since then (Nghiem et al., 2013).

Declines in mortality rates for vulnerable road users such as pedestrians, cyclists and motorcyclists were substantially less than those for car occupants. Reductions in deaths among pedestrians, cyclists and motorcyclists have levelled-off and some increases have been recorded. As a consequence, road safety priorities in many countries have recently shifted to vulnerable road users in urban areas (OECD/ITF, 2015).

The economic crisis has contributed to the reduction in road traffic deaths in many countries, by reducing the distance travelled (especially by young men and by trucks). However, this impact is likely to be short-lived and, over the longer term, effective road safety policies will remain the primary contributor to reduced mortality (OECD/ITF, 2015).

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 2010 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.

References

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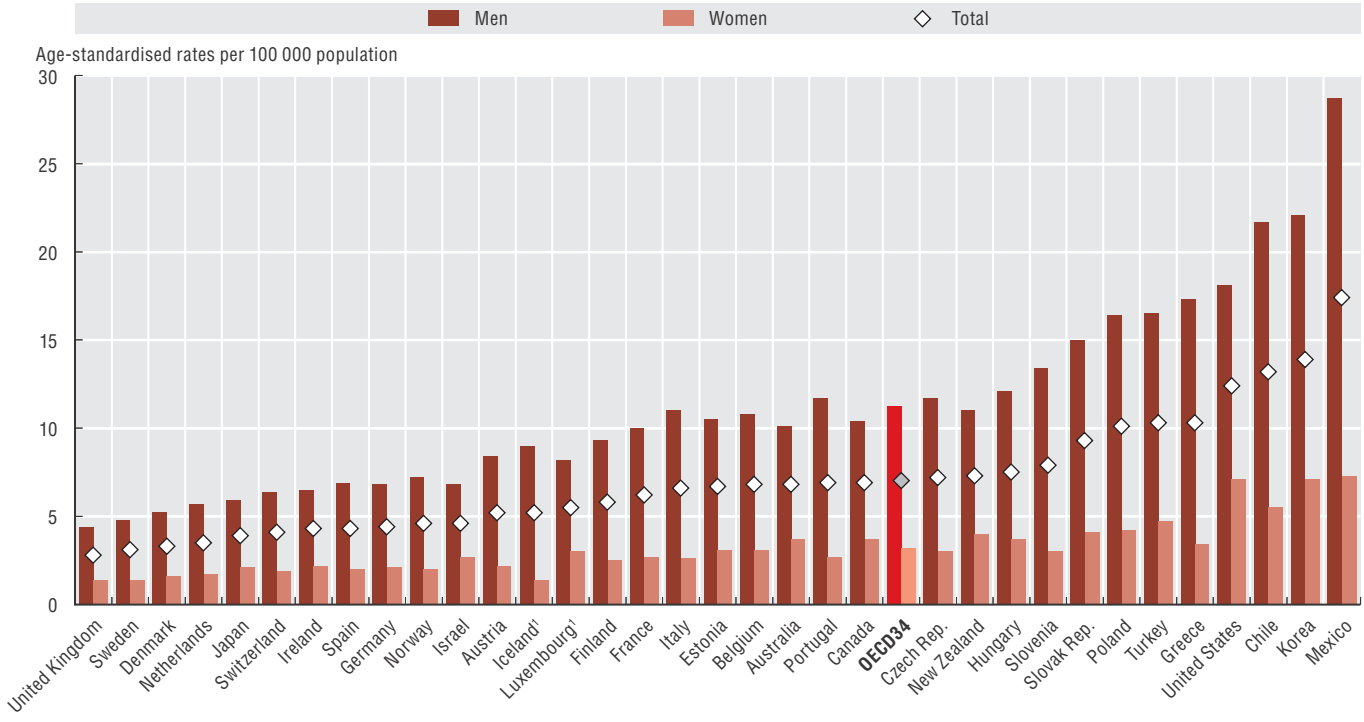
3.10. Transport accident mortality, 2013 (or nearest year)

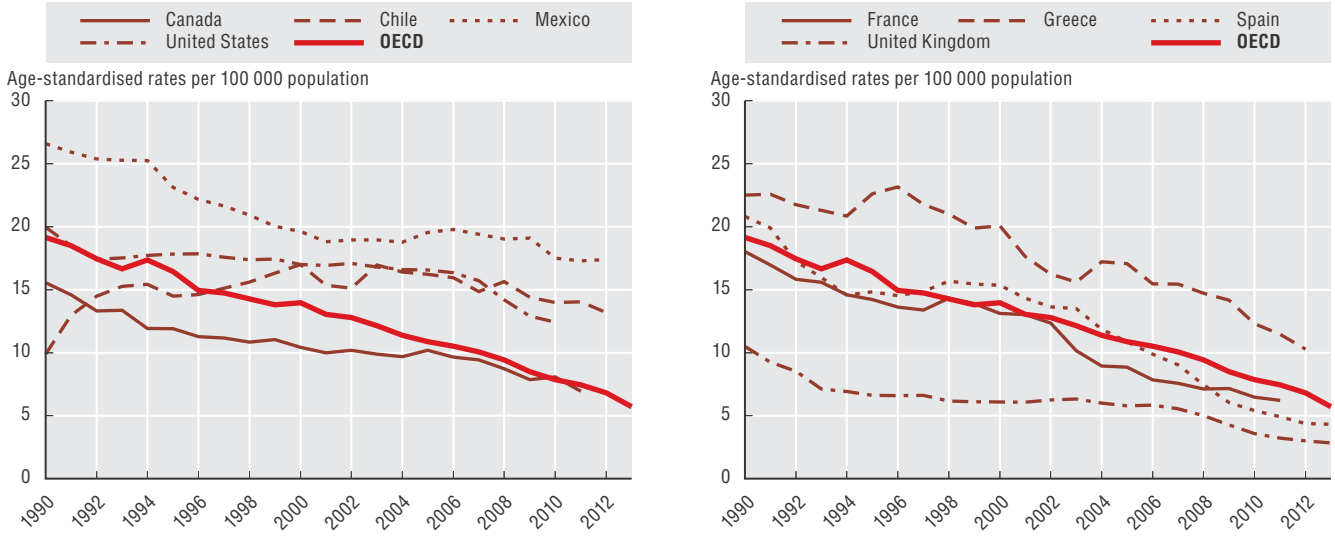


1. Three-year average.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en* and Ministry of Health for New Zealand.

StatLink http://dx.doi.org/10.1787/888933280766

3.11. Trends in transport accident mortality, selected OECD countries, 1990-2013



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280766

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Suicide

Suicide is a significant cause of death in many OECD countries, accounting for over 150 000 deaths in 2013. A complex set of reasons may explain why some people choose to attempt or commit suicide. A high proportion of people who have attempted or committed suicide are suffering from psychiatric disorders such as severe depression, bipolar disorder and schizophrenia. The social context in which an individual lives is also important. Low income, alcohol and drug abuse, unemployment and social isolation are all associated with higher rates of suicide.

Figure 3.12 shows that suicide rates in 2013 were lowest in Turkey, Greece, Mexico, Italy and Israel, at seven or fewer deaths per 100 000 population, although the number of suicides in certain countries may be under-reported because of the stigma associated with the act or data unreliability associated with reporting criteria (see "Definition and comparability"). Korea had the highest suicide rate with nearly 30 deaths per 100 000 population, followed by Japan, Hungary and Slovenia with nearly 20 deaths per 100 000 population. Mortality rates from suicide are three-to-four times greater for men than for women across OECD countries (Figure 3.12). In Poland and the Slovak Republic, men are seven times more likely to commit suicide than women. 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 1990, suicide rates have decreased by around 30% across OECD countries, with the rates being halved in countries such as Hungary and Finland (Figure 3.13). In Estonia, after an initial rise in the early 1990s, the rates have also fallen sharply. On the other hand, death rates from suicides have increased in Korea and Japan. In Japan, there was a sharp rise in the mid-to-late 1990s, coinciding with the Asian financial crisis, but rates have started to come down in recent years. In Korea, suicide rates rose steadily over the past two decades peaking around 2010, before starting to come down (Lim et al., 2014). Suicide is the number one cause of death among teenagers in Korea.

Suicide is often linked with depression and the abuse of alcohol and other substances. Early detection of these psychosocial 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 developing national strategies for prevention, focusing on at-risk groups. Mental health services in Korea lag behind those of other countries with fragmented support, focused largely around institutions, and insufficient or ineffective support services provided to those who remain in the community. Further efforts are also needed to remove the stigma associated with seeking care (OECD, 2014).

Previous studies have shown a strong link between adverse economic conditions and higher levels of suicide (Van Gool and Pearson, 2014). Suicide rates rose slightly at the start of the economic crisis in 2008-2009 in a number of countries, but this trend did not persist in most. In Greece, suicide rates were stable in 2009 and 2010, but have increased since 2011 (Figure 3.13). All countries need to continue monitoring developments closely in order to be able to respond quickly, including monitoring high-risk populations such as the unemployed and those with psychiatric disorders (see indicator "Mental health care" in Chapter 8).

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 2010 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.

References

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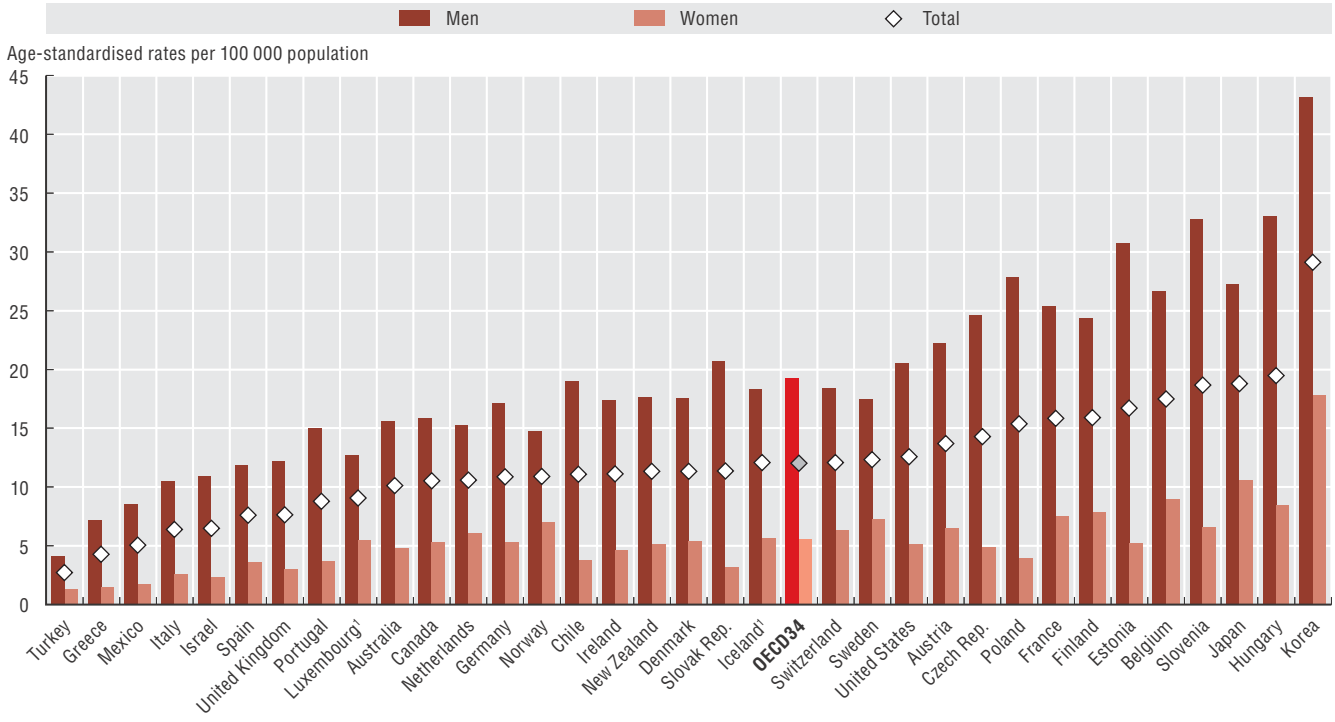
OECD (2014), *Making Mental Health Count: The Social and Economic costs of Neglecting Mental Health Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264208445-en*.

Van Gool, K. and M. Pearson (2014), "Health, Austerity and Economic Crisis: Assessing the Short-term Impact in OECD Countries", *OECD Health Working Papers*, No. 76, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5jxx71lt1zg6-en*.

3.12. Suicide, 2013 (or nearest year)

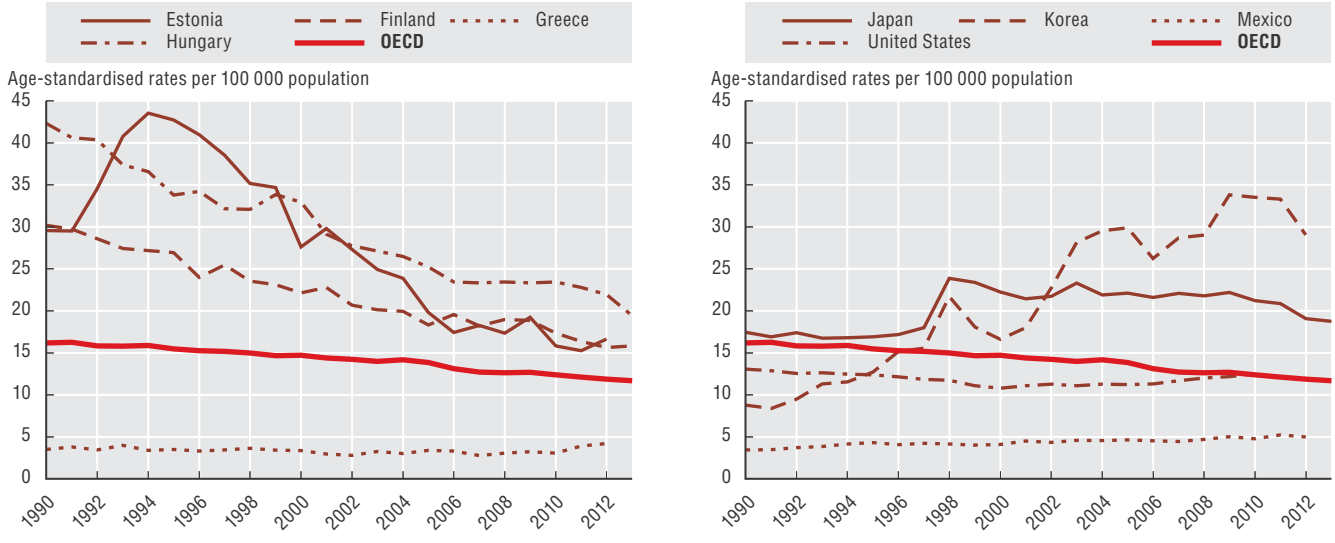


1. Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280778

3.13. Trends in suicide, selected OECD countries, 1990-2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280778

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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, the social environment, individual lifestyles as well as the characteristics and effectiveness of health systems.

In most OECD countries, infant mortality is low and there is little difference in rates (Figure 3.14). In 2013, the average in OECD countries was less than four deaths per 1 000 live births, with rates being the lowest in Iceland, Slovenia, Finland, Estonia and Japan. A small group of OECD countries still have comparatively high infant mortality (Mexico, Turkey and Chile), although in these three countries infant mortality has reduced considerably over the past few decades (Figure 3.15).

In some large partner countries (India, South Africa and Indonesia), infant mortality remains above 20 deaths per 1 000 live births. In India, one-in-twenty-five children die before their first birthday, although the rates have fallen sharply over the past few decades. Infant mortality rates have also reduced greatly in Indonesia.

In OECD countries, 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 main 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 "Infant health: low birth weight"). In a number of higher-income countries, this has contributed to a levelling-off of the downward trend in infant mortality 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.

In the United States, the reduction in infant mortality has been slower than in most other OECD countries. In 2000, the US rate was below the OECD average, but it is now higher (Figure 3.14). One of the explanations that have been given for that the high rate of infant mortality in the United States is that it is based on a more complete registration of very premature and low birth weight babies than in many other countries (Joseph et al., 2012). In order to remove the impact of differences in registration practices of very small babies, the figures shown in Figure 3.14 for a majority of countries (including the United States) exclude deaths of babies of less than 22 weeks of gestation period or 500 grams birth weight. The rate in the United States nonetheless remains higher than the OECD average, especially for post-neonatal mortality (deaths after one month) which is greater in the United States than in most other OECD countries. There are large differences in infant mortality among racial groups in the United States, with Black women more likely to give birth to low birth weight infants, and with infant mortality more than double that for White women (10.9 vs. 5.1 in 2012) (NCHS, 2015).

Many studies use infant mortality as a health outcome to examine the effect of a variety of medical and non-medical determinants of health. Although most analyses show that higher health spending tends to be associated with lower infant mortality, 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).

Definition and comparability

The infant mortality rate is the number of deaths of children under one year of age, expressed per 1 000 live births. Some of the international variation in infant mortality rates is related to variations in registering practices for very premature infants. While some countries register all live births including very small babies with low odds of survival, several countries apply a minimum threshold of a gestation period of 22 weeks (or a birth weight threshold of 500 grams) for babies to be registered as live births (Euro-Peristat, 2013). To remove this data comparability limitation, the data presented in this section are now based on a minimum threshold of 22 weeks of gestation period (or 500 grams birth weight) for a majority of OECD countries that have provided these data. However, the data for some countries (e.g., Canada and Australia) continue to be based on all registered live births, resulting in some over-estimation.

References

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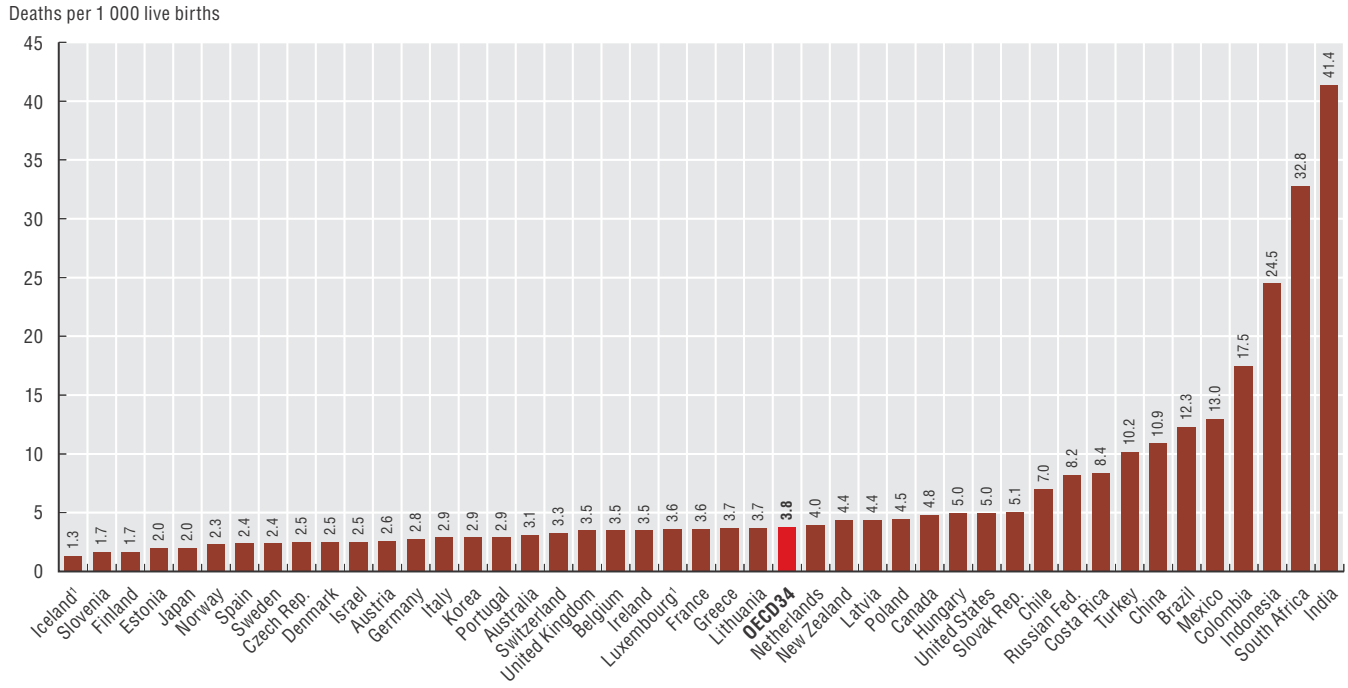
NCHS (2015), Health, United States, 2014, with Special Feature on Adults Aged 55-64, NCHS, Hyattsville, United States.

Retzlaff-Roberts, D., C. Chang and R. Rubin (2004), "Technical Efficiency in the Use of Health Care Resources: A Comparison of OECD Countries", *Health Policy*, Vol. 69, pp. 55-72.

3.14. Infant mortality, 2013 (or nearest year)



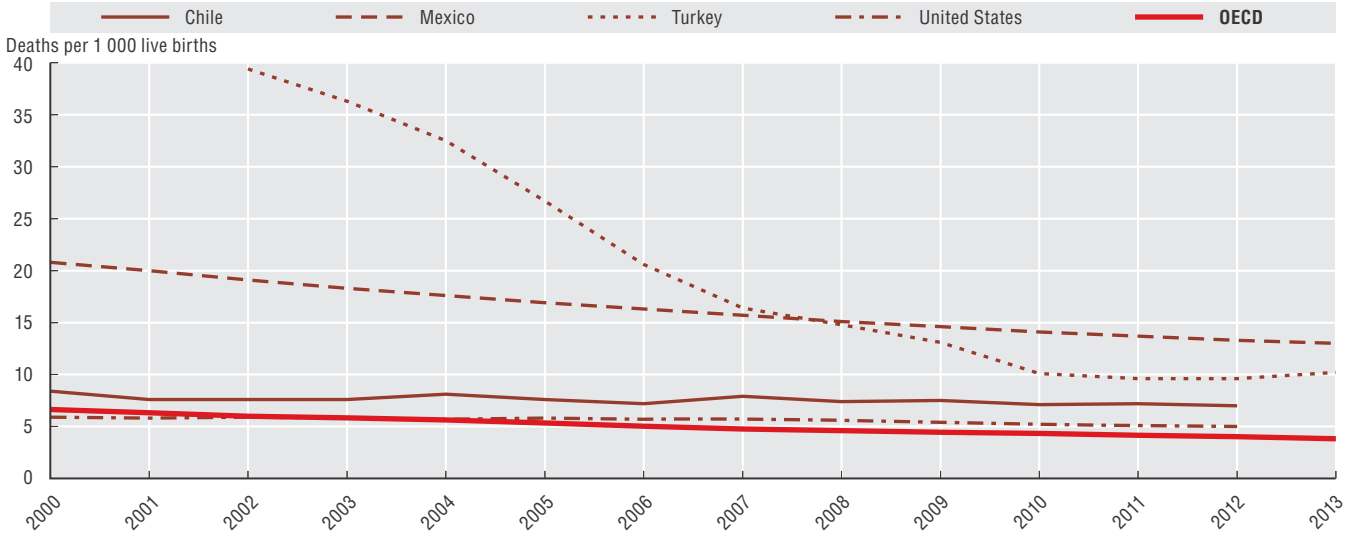
Note: The data for most countries are based on a minimum threshold of 22 weeks of gestation period (or 500 grams birthweight) to remove the impact of different registration practices of extremely premature babies across countries.

1. Three-year average (2011-13).

Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280782

3.15. Trends in infant mortality, selected OECD countries, 2000-13



Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280782

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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. Risk factors for low birth weight include maternal smoking, excessive alcohol consumption, poor nutrition, low body mass index, lower socio-economic status, and having had in-vitro fertilisation treatment and multiple births.

One in 15 babies born in OECD countries in 2013 – or 6.6% of all births – weighed less than 2 500 grams at birth (Figure 3.16). The proportions of low-weight births were lowest in Nordic countries (Iceland, Finland, Sweden, Norway, with the exception of Denmark) and Estonia, with less than 5% of live births defined as low birth weight. Japan, had the highest proportion of low birth weight infants among OECD countries, with rates close to 10%, followed by Greece, Hungary and Portugal.

Despite the widespread use of a 2 500 grams limit for low birth weight, physiological variations in size occur across different countries and population groups, and these need to be taken into account when interpreting differences (Euro-Peristat, 2013). Some populations may have lower than average birth weights than others because of genetic differences.

In almost all OECD countries, the proportion of low birth weight infants has increased over the past two decades, mainly due to increases in pre-term births (Euro-Peristat, 2013). There are several reasons for this rise, including a growing number of multiple pregnancies mainly as a result of the rise in fertility treatment, and a rise in maternal age (Delnord et al., 2015). Another factor which may explain the rise in low birth weight infants is the increased use of delivery management techniques such as induction of labour and caesarean delivery, which have increased the survival rates of low birth weight babies.

Korea, Greece, Spain, Portugal and Japan have seen large increases of low birth weight babies over the past two decades, although the proportions remain below the OECD average in Korea (Figure 3.17). In Japan, this increase can be explained by changes in obstetric interventions, in particular the greater use of caesarean sections, along with changes in maternal socio-demographic and behavioural factors (Yorifuji et al., 2012). In Greece, the rise in the proportion of low birth weight babies started in the mid-1990s, well before the economic crisis, and peaked in 2010. Some researchers have suggested that the high rates of low birth weight babies between 2009 and 2012 were linked to the economic crisis and its impact on unemployment rates and lowering family incomes in Greece (Kentikelenis, 2014). In 2013, the rate came down to levels observed before the crisis.

Comparisons of different population groups within countries indicate that the proportion of low birth weight infants may also be influenced by differences in education level, income and associated living conditions. In the United States, there are marked differences in the proportion of low birth weight infants among racial groups, with black infants having a rate almost double that of white infants (13% versus 7% in 2013) (NCHS, 2015). 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.

The proportion of low birth weight infants is also generally higher among women who smoke than for non-smokers.

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 threshold 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 expressed as a percentage of total live births.

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Kentikelenis, A. (2014), "Greece's Health Crisis: From Austerity to Denialism", *The Lancet*, Vol. 383, No. 9918, pp. 748-753.

NCHS – National Center for Health Statistics (2015), *Health, United States, 2014, With Special Feature on Adults Aged 55-64*, NCHS, Hyattsville, United States.

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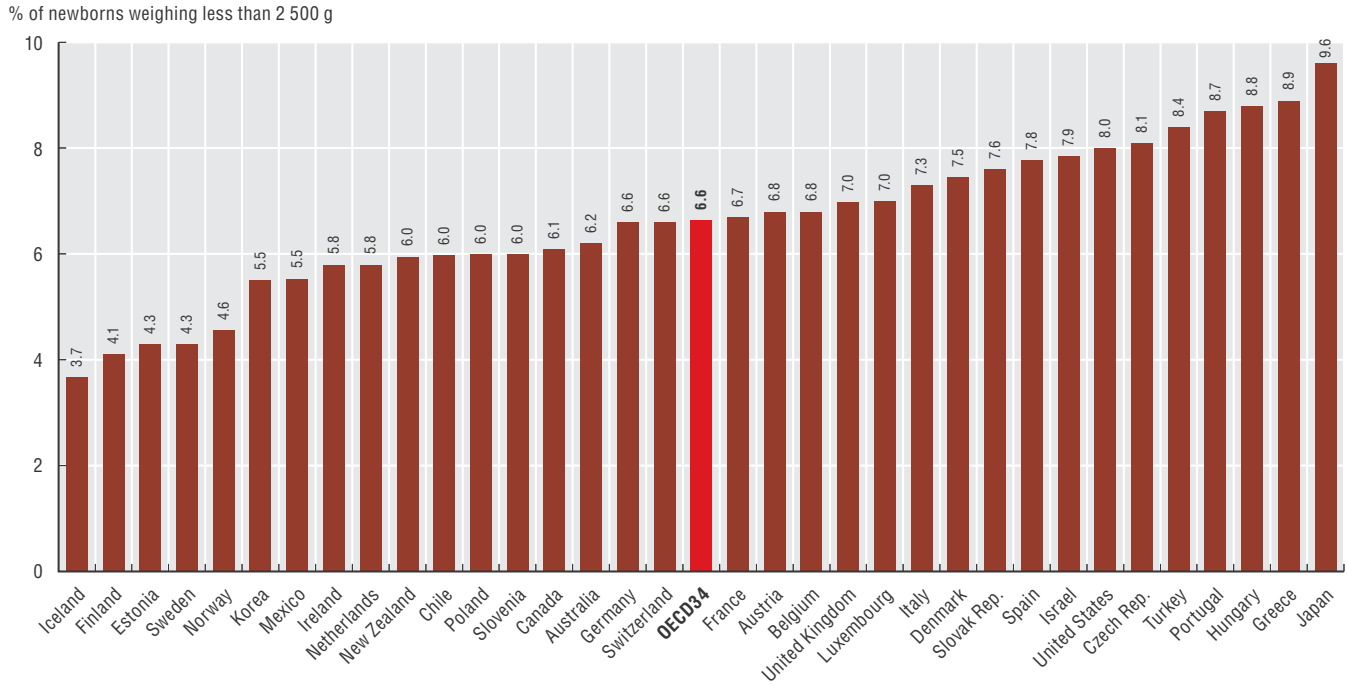
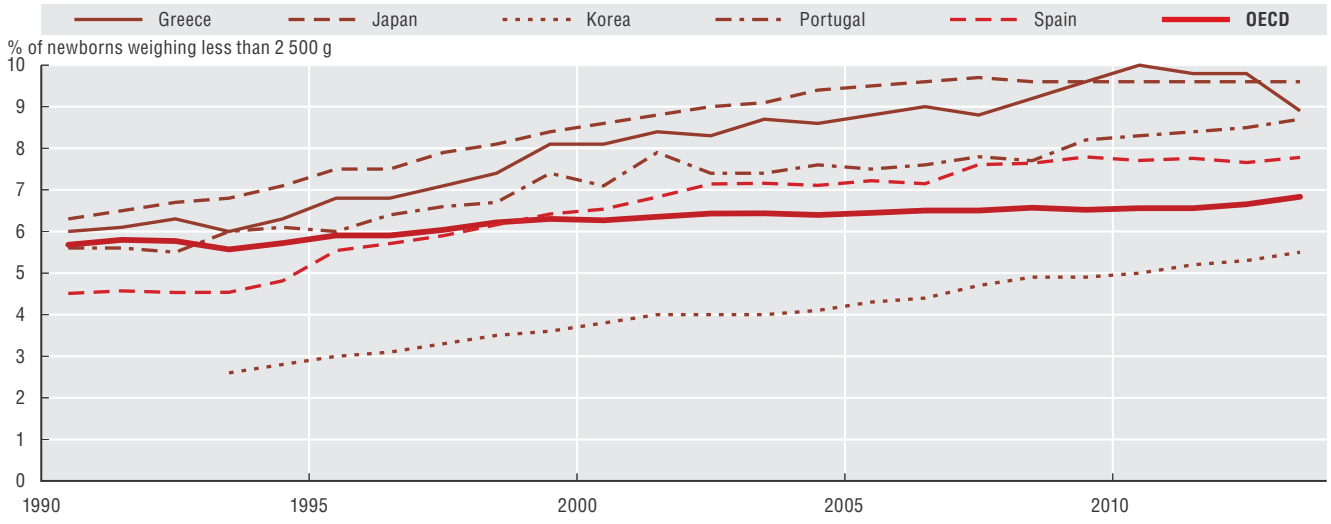
3.16. Low birth weight infants, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280794

3.17. Trends in low birth weight infants, selected OECD countries, 1990-2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280794

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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 (DeSalvo et al., 2005).

For the purpose of international comparisons, cross-country variations 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. In addition, since older people 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 to be in good health.

With these limitations in mind, in almost all OECD countries, a majority of adults reports being in good health (Figure 3.18). New Zealand, Canada, the United States and Australia are the four leading countries, with more than 85% of people reporting to be in good health. However, the response categories offered to survey respondents in these four countries are different from those used in European countries and Asian OECD countries, which introduce an upward bias (see box on "Definition and comparability").

On the other hand, less than half of adults in Japan, Korea and Portugal rate their health as being good. The proportion is also relatively low in Estonia, Hungary, Poland, Chile and the Czech Republic, where less than 60% of adults consider themselves to be in good health.

In all OECD countries, men are more likely than women to report being in good health, except in Australia, New Zealand, Canada and United Kingdom where the proportion is almost equal. As expected, people's rating of their own health tends to decline with age. In many countries, there is a particularly marked decline in how people rate their health after age 45 and a further decline after age 65 (OECD, 2015).

There are large disparities in self-reported health across different socio-economic groups, as measured by income or education level. Figure 3.19 shows that, in all countries, people with a lower level of income tend to report poorer health than people with higher income, although the gap varies. On average across OECD countries, nearly 80% of people in the highest income quintile report being in good health, compared with just over 60% for people in the lowest income group. These disparities may be explained by differences in living and working conditions, as well as differences in lifestyles (e.g., smoking, harmful alcohol drinking, physical inactivity, and obesity problems). In addition, people in low-income households may have limited access to certain health services for financial or other reasons (see Chapter 7 on "Access to care"). A reverse causal link is also possible, with poor health status leading to lower employment and lower income.

Greater emphasis on public health and disease prevention among disadvantaged groups, and improving access to health services may contribute to further improvements in population health status in general and reducing health inequalities.

Definition and comparability

Perceived health status reflects people's overall perception of their health. Survey respondents are typically asked a question such as: "How is your health in general? very good, good, fair, poor, very poor".

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 and countries. In particular, the response scale used in the United States, Canada, New Zealand, Australia and Chile is *asymmetric* (skewed on the positive side), including the following response categories: "excellent, very good, good, fair, poor". The data in *OECD Health Statistics* 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"). In Israel, the scale is *symmetric* but there is no middle category related to "fair" health. Such differences in response categories biases upward the results from those countries that are using an asymmetric scale or a symmetric scale but without any middle category.

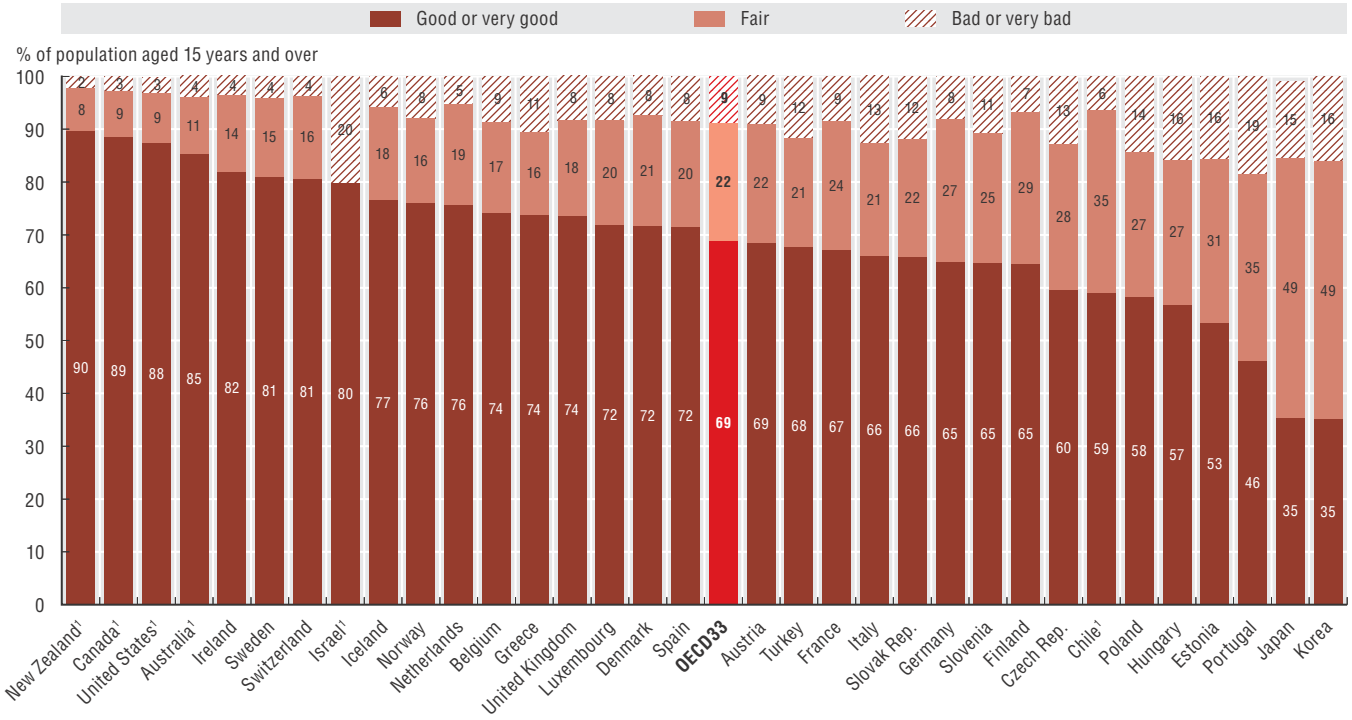
Self-reported health by income level is reported for the first quintile (lowest 20% of income group) and the fifth quintile (highest 20%). Depending on the surveys, the income may relate either to the individual or the household (in which case the income is equivalised to take into account the number of persons in the household).

References

DeSalvo, K.B. et al. (2005), "Predicting Mortality and Healthcare Utilization with a Single Question", *Health Services Research*, Vol. 40, pp. 1234-1246.

OECD (2015), *OECD Health Statistics 2015*, online, OECD Publishing, Paris, *www.oecd.org/health/health-data*.

3.18. Perceived health status among adults, 2013 (or nearest year)

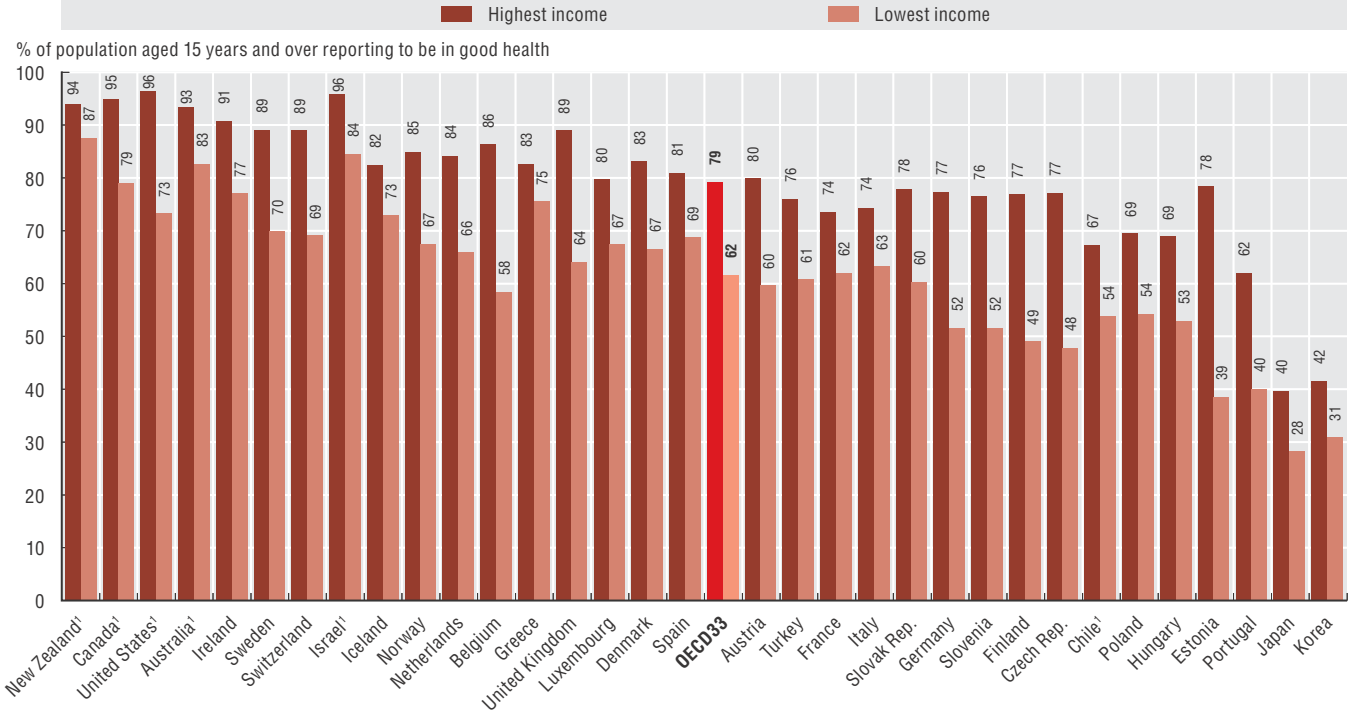


1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in an upward bias. In Israel, there is no category related to fair health.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en* (EU-SILC for European countries).

StatLink *http://dx.doi.org/10.1787/888933280801*

3.19. Perceived health status by income level, 2013 (or nearest year)



Note: Countries are ranked in descending order of perceived health status for the whole population.

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. In Israel, data by income group relate to the employed population.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en* (EU-SILC for European countries).

StatLink *http://dx.doi.org/10.1787/888933280801*

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Cancer incidence

In 2012, an estimated 5.8 million new cases of cancer were diagnosed in OECD countries, 54% (around 3.1 million) occurring in men and 46% (around 2.7 million) in women. The most common were breast cancer (12.9% of all new cancer cases) and prostate cancer (12.8%), followed by lung cancer (12.3%) and colorectal cancer (11.9%). These four cancers represented half of the estimated overall burden of cancer in OECD countries (Ferlay et al., 2014).

Large variations exist in cancer incidence across OECD countries. Cancer incidence rates are highest in Denmark, Australia, Belgium, Norway, United States, Ireland, Korea, Netherlands and France registering more than 300 new cancer cases per 100 000 population in 2012 (Figure 3.20). The lowest rates were reported in some Latin American and Mediterranean countries such as Mexico, Greece, Chile and Turkey, with around 200 new cases or less per 100 000 population. These variations reflect not only variations in the prevalence of risk factors for cancer, but also national policies regarding cancer screening and differences in quality of reporting.

Cancer incidence was higher for men in all OECD countries in 2012 except in Mexico. However, the gender gap varies widely across countries. In Turkey, Estonia and Spain, incidence among men were around 60% higher than among women, whereas in the United Kingdom, Denmark and Iceland, the gap was less than 10%.

Breast was by far the most common primary sites in women (28% on average), followed by colorectal (12%), lung (10%), and cervical (3%). The causes of breast cancer are not fully understood, but the risk factors include age, family history, breast density, exposure to oestrogen, being overweight or obese, alcohol intake, radiation and hormone replacement therapy. Incidence rates in 2012 were highest in Belgium, Denmark and Netherlands, with rates 25% or more than the OECD average (Figure 3.21). Chile and Mexico had the lowest rate, followed by Turkey and Greece. The variation in breast cancer incidence across OECD countries may be at least partly attributed to variation in the extent and type of screening activities. Although mortality rates for breast cancer have declined in most OECD countries since the 1990s due to earlier detection and improvements in treatments, breast cancer continues to be the leading cause of death from cancer among women (see Indicator "Mortality from cancer" in Chapter 3 and "Screening, survival and mortality from breast cancer" in Chapter 8).

Prostate cancer has become the most commonly diagnosed cancer among men in almost all OECD countries, except in Hungary, Poland, Turkey and Greece where lung cancer is still predominant, and in Japan and Korea where colorectal cancer is the main cancer among men. On average across OECD countries, prostate cancer accounted for 24% of all new cancer diagnoses in men in 2012, followed by lung (14%) and colorectal (12%). Similar to breast cancer, the causes of prostate cancer are not well-understood but age, ethnic origin, family history, obesity, lack of exercise and poor nutrition are the main risk factors. Incidence in 2012 was highest in Norway, Sweden, Australia and Ireland, with rates more than 50% higher than the OECD average (Figure 3.22). Greece had the lowest rates, followed by Mexico, Korea and Japan. Prostate cancer incidence rates have increased in most OECD countries since the late 1990s with increased use of prostate specific antigen (PSA) tests having led to greater detection (Ferlay et al., 2014). Differences between countries' rates can be partly attributed to differences in the use of PSA testing. Mortality rates from prostate cancer have decreased in some OECD countries as a consequence of early detection and improvements in treatments (see indicator "Mortality from cancer").

Definition and comparability

Cancer incidence rates are based on numbers of new cases of cancer registered in a country in a year per 100 000 population. The rates have been directly age-standardised based on Segi's world population to remove variations arising from differences in age structures across countries and over time. The data come from the International Agency for Research on Cancer (IARC), GLOBOCAN 2012, available at *globocan.iarc.fr*. GLOBOCAN estimates for 2012 may differ from national estimates due to differences in methods.

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

The incidence of all cancers is classified to ICD-10 codes C00-C97 (excluding non-melanoma skin cancer C44). Breast cancer corresponds to C50, and prostate cancer to C61.

References

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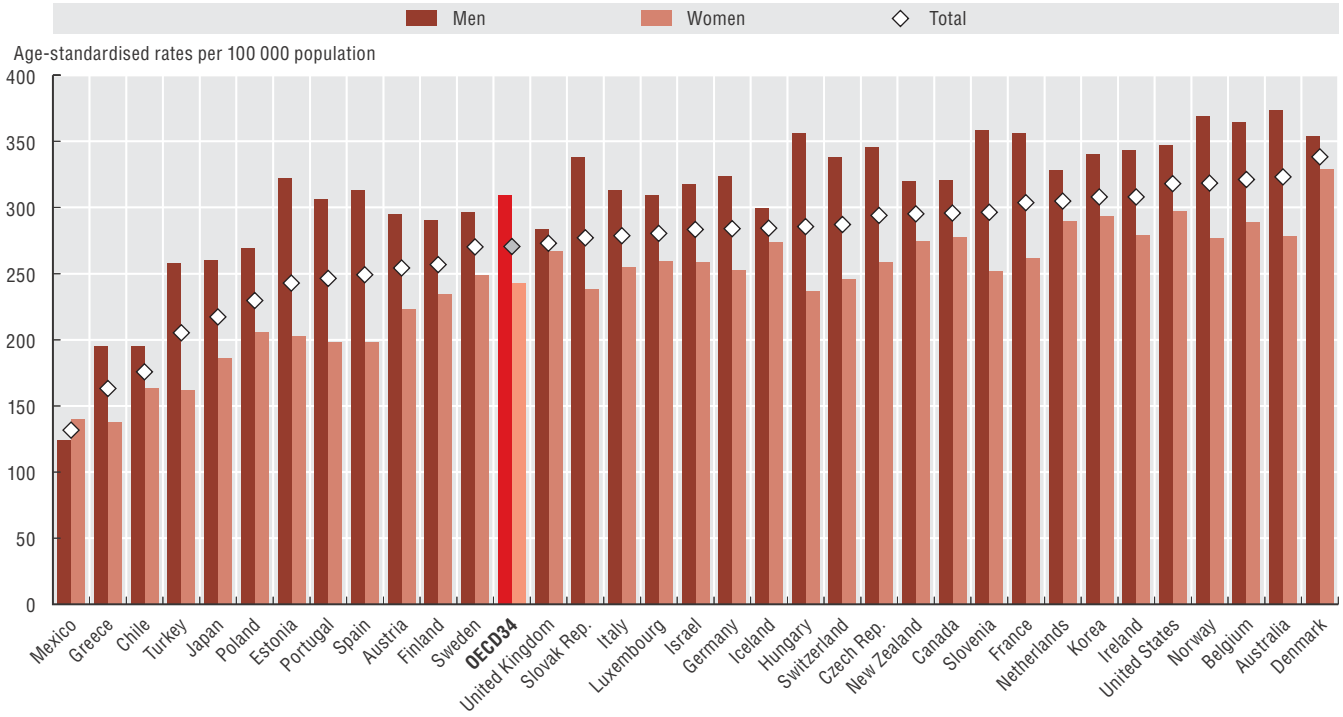
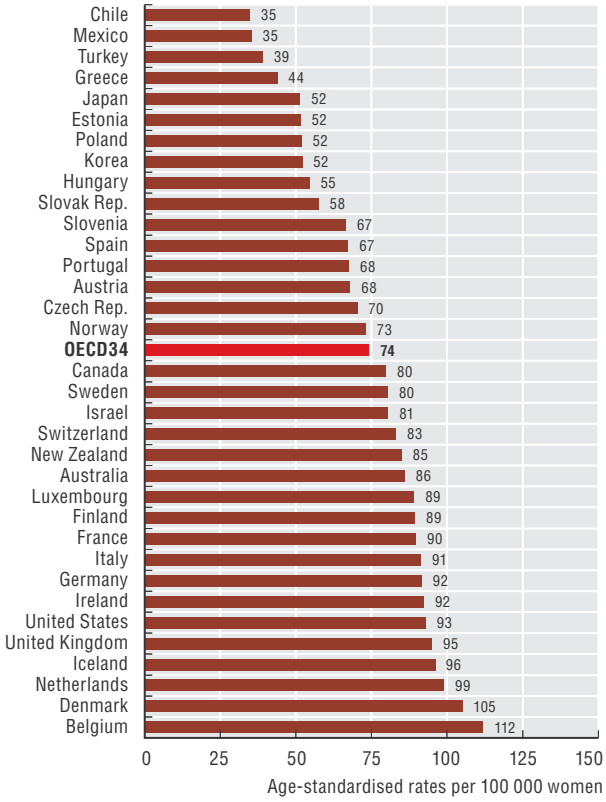
3.20. All cancers incidence, men and women, 2012



Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

StatLink http://dx.doi.org/10.1787/888933280811

3.21. Breast cancer incidence, women, 2012

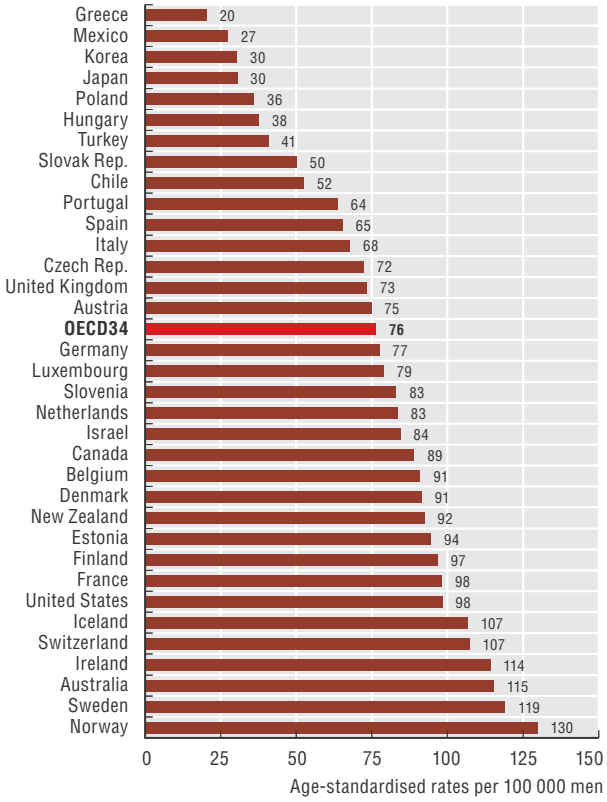


Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

StatLink http://dx.doi.org/10.1787/888933280811

Information on data for Israel: *http://oe.cd/israel-disclaimer*

3.22. Prostate cancer incidence, men, 2012



Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

StatLink http://dx.doi.org/10.1787/888933280811

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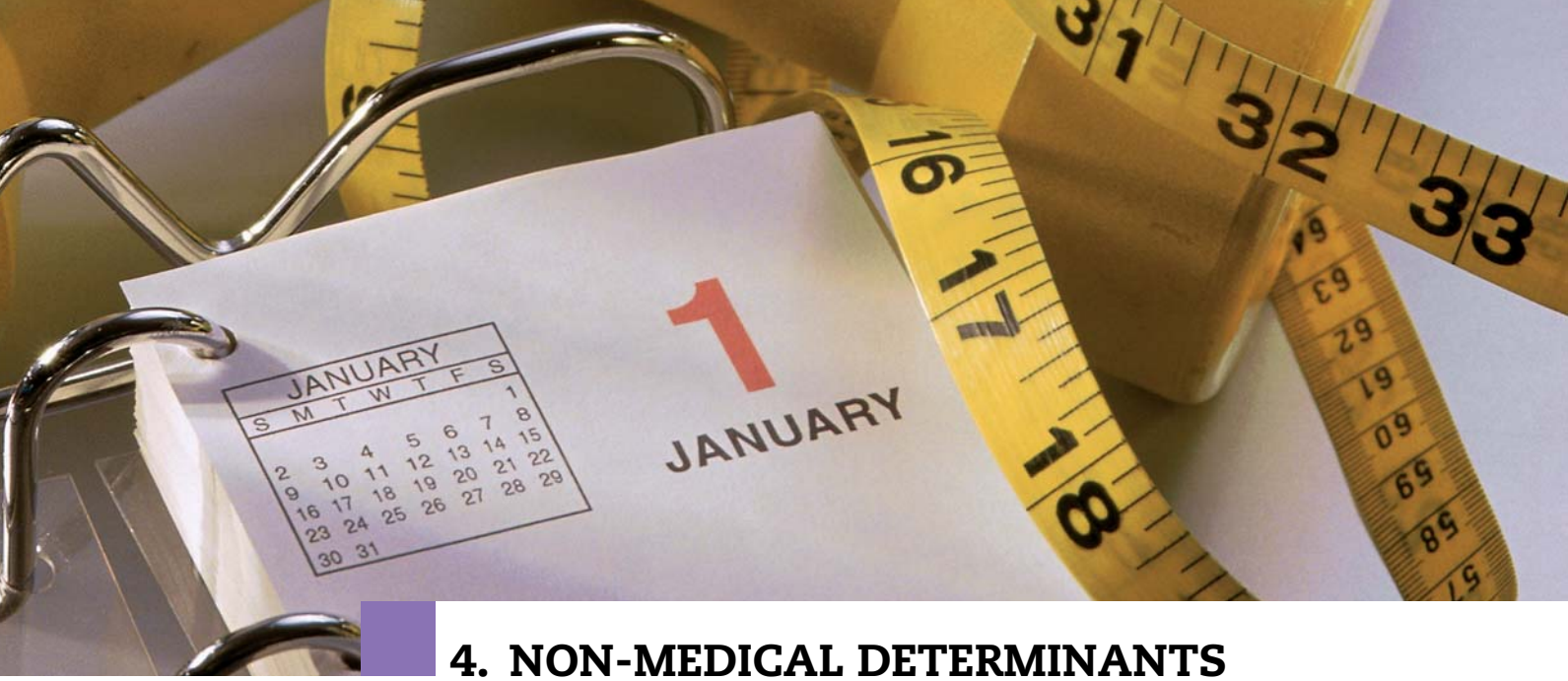

4. NON-MEDICAL DETERMINANTS OF HEALTH

Tobacco consumption among adults

Alcohol consumption among adults

Fruit and vegetable consumption among adults

Obesity among adults

Overweight and obesity among children

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Tobacco consumption among adults

Tobacco kills nearly 6 million people each year, of whom more than 5 million are from direct tobacco use and more than 600 000 are non-smokers exposed to second-hand smoke (WHO, 2015). Tobacco is a major risk factor for at least two of the leading causes of premature mortality – cardiovascular diseases and cancer, increasing the risk of heart attack, stroke, lung cancer, cancers of the larynx and mouth, and pancreatic cancer, among others. In addition, it is a dominant contributing factor for respiratory diseases such as chronic obstructive pulmonary disease (US DHHS, 2014). Smoking in pregnancy can lead to low birth weight and illness among infants. Smoking remains the largest avoidable risk factor for health in OECD countries and worldwide.

The proportion of daily smokers in the adult population varies greatly, even between neighboring countries (Figure 4.1). Nineteen of 34 OECD countries had less than 20% of the adult population smoking daily in 2013. Rates were lowest in Sweden, Iceland, Mexico and Australia (less than 13%). Rates were also less than 13% in Brazil, Colombia, and India, although the proportion of smokers among men is high, up to 23% in India. On the other hand, smoking rates remain high in Greece in both men and women, and in Latvia and Indonesia where more than one in two men smoke daily. Smoking prevalence is higher among men than among women in all OECD countries except in Sweden and Iceland. The gender gap in smoking rates is particularly large in Korea, Japan, and Turkey, as well as in the Russian Federation, India, Indonesia, Latvia, Lithuania, South Africa and China (Figure 4.1).

Smoking rates across most OECD countries have shown a marked decline, although other forms of smokeless tobacco use, such as snuff in Sweden, are not taken into account. On average, smoking rates have decreased by about one fourth since 2000, from 26% in 2000 to 20% in 2013. Large reductions occurred in Norway, Iceland, Sweden, Denmark and Ireland, as well as in India.

In the period that followed World War II, smoking rates were very high among men (50% or more) in most OECD countries through to the 1960s and 1970s, while the 1980s and the 1990s were characterised by a marked downturn in tobacco consumption. Non-OECD countries and emerging economies stand at an earlier phase of the evolution of smoking, with high rates and a wide gender gap. In OECD countries, much of the decline in tobacco use can be attributed to policies aimed at reducing tobacco consumption through public awareness campaigns, advertising bans, increased taxation, and restriction of smoking in public spaces and restaurants, in response to rising rates of tobacco-related diseases. More stringent policies and higher level of taxes have led to bigger reductions in smoking rates between 1996 and 2011 in OECD countries (OECD, 2015). As governments continue to reinforce their anti-tobacco policies, new strategies such as plain packaging for tobacco products aimed to restrict branding have been implemented (e.g. in Australia) and are being adopted by an increasing number of countries.

Several studies provide strong evidence of socio-economic differences in smoking and mortality (Mackenbach et al., 2008). People in less affluent 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). Self-reports of behaviours may also suffer from social desirability bias that may potentially limit cross-country comparisons.

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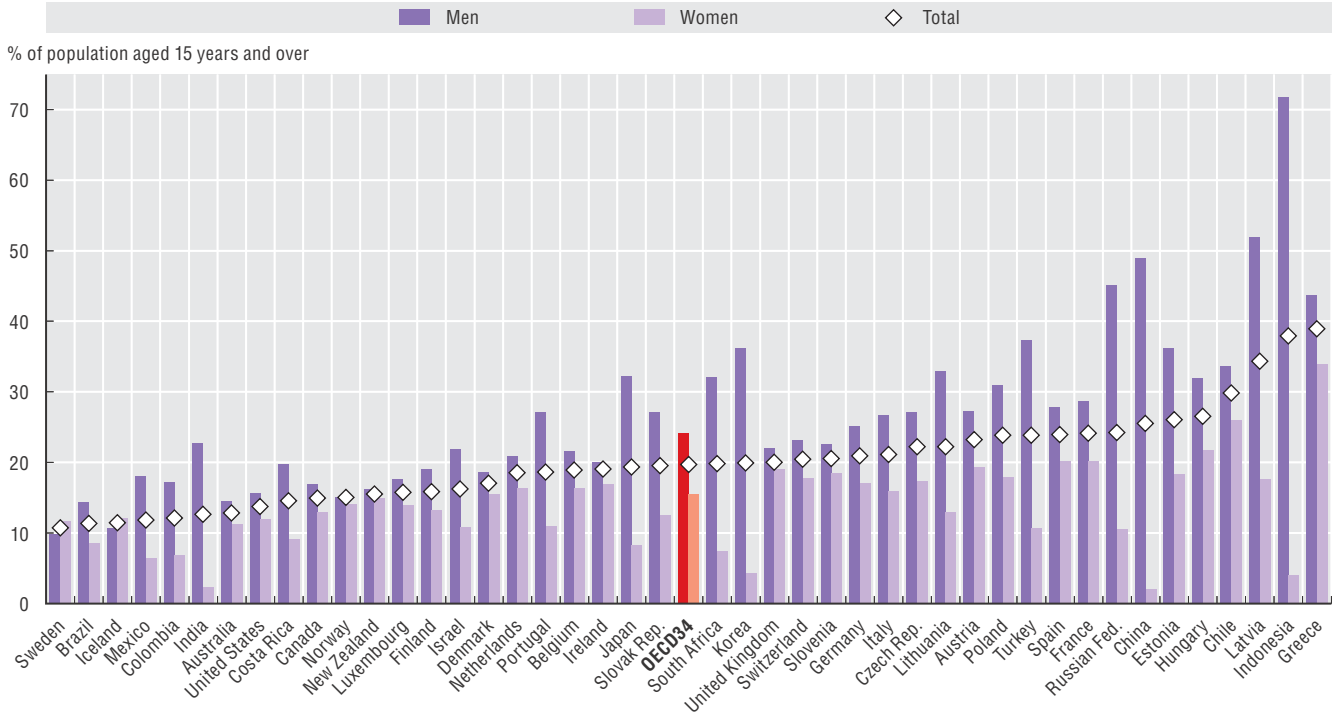
4.1. Daily smoking in adults, 2013 (or nearest year)



Note: Countries are ranked in ascending order of smoking rates for the whole population.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

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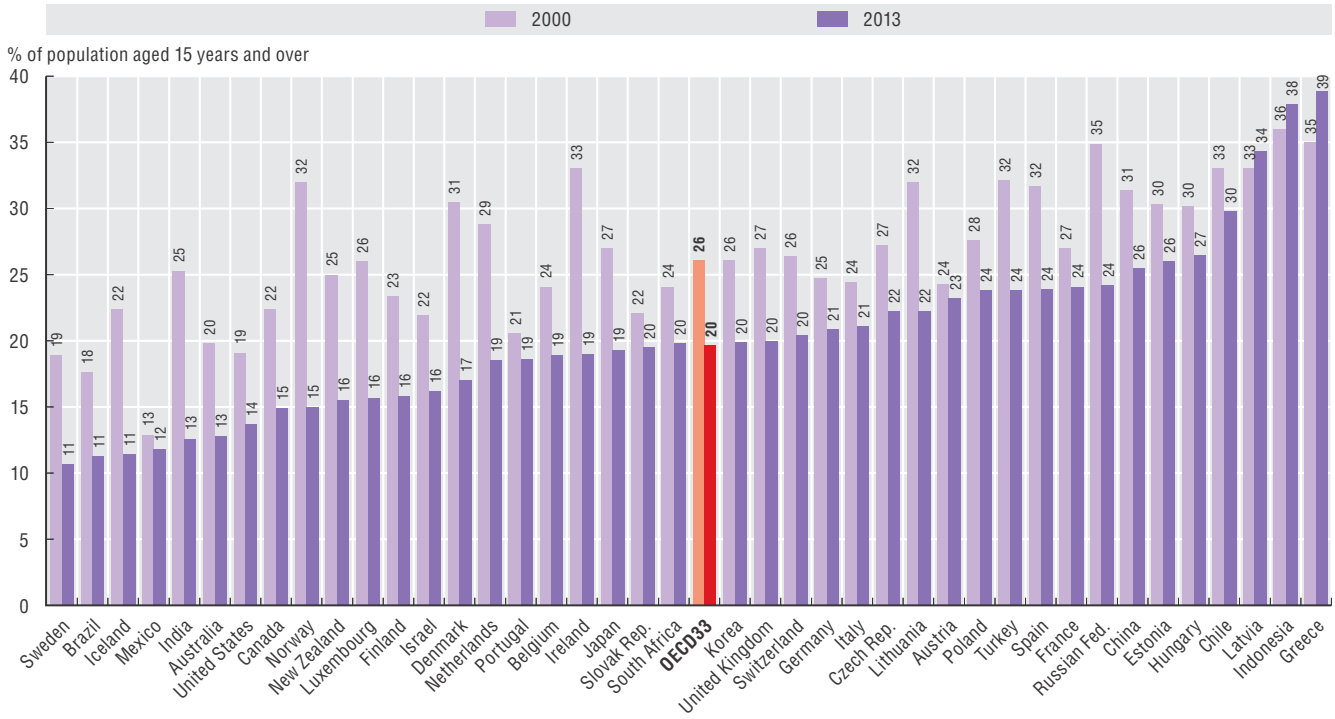
4.2. Change in daily smoking in adults, 2000 and 2013 (or nearest years)



Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*
Information on data for Israel: *http://oe.cd/israel-disclaimer*

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Alcohol consumption among adults

The health burden related to harmful alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (Rehm et al., 2009; WHO, 2014; OECD, 2015). Alcohol use is associated with numerous harmful health and social consequences, including an increased risk of a range of cancers, stroke, and liver cirrhosis, among others. Foetal exposure to alcohol increases the risk of birth defects and intellectual impairment. Alcohol also contributes to death and disability through accidents and injuries, assault, violence, homicide and suicide. The use of alcohol is estimated to cause more than 3.3 million deaths worldwide per year, and accounts for 5.1% of the global burden of disease (WHO, 2014). Health care costs associated with excessive drinking in the United States are estimated at USD 25.6 billion (Bouchery et al., 2011). In the Russian Federation, alcohol misuse was a major contributing factor to the sharp rise in premature mortality and decline in life expectancy during the 1990s (OECD, 2012). The use of alcohol also has broader societal consequences, accounting for large losses in work productivity through absenteeism and premature mortality, as well as injuries and death among non-drinkers (e.g. because of traffic accidents caused by drivers under the influence of alcohol).

Alcohol consumption, as measured by recorded data on annual sales, stands at 8.9 litres per adult, on average, across OECD countries, based on the most recent data available (Figure 4.3). Austria, Estonia and the Czech Republic, as well as Lithuania, reported the highest consumption of alcohol with 11.5 litres or more per adult per year in 2013. Low alcohol consumption was recorded in Turkey and Israel, as well as in Indonesia and India, where religious and cultural traditions restrict the use of alcohol in some population groups.

Although average alcohol consumption has gradually fallen in many OECD countries since 2000, it has risen in Poland, Sweden and Norway, as well as in Latvia, Lithuania and the Russian Federation. However, national aggregate data does not permit to identify individual drinking patterns and the populations at risk. OECD analysis based on individual-level data show that hazardous drinking and heavy episodic drinking are on the rise in young people and women especially. Men of low socioeconomic status are more likely to drink heavily than those of a higher socioeconomic status, while the opposite is observed in women (OECD, 2015). Alcohol consumption is highly concentrated, as the large majority of alcohol is drunk by the 20% of the population who drink the most (Figure 4.4), with some variation across countries. The 20% heaviest drinkers in Hungary consume about 90% of all alcohol consumed, while in France the share is about 50%.

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 the dissemination of information on alcohol-related harm (WHO, 2010). The OECD used this as a starting point to identify a set of policy options to be assessed in an economic evaluation, and showed that several policies have the potential to reduce heavy drinking, regular or episodic, as well as alcohol dependence. Governments seeking to tackle binge drinking and other types of alcohol abuse can use a range of policies that have proven to be effective, including counselling heavy drinkers, stepping up enforcement of drinking-and-driving laws, as well as raising taxes, raising prices, and increasing the regulation of the marketing of alcoholic drinks (OECD, 2015).

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. WHO produces estimates for unrecorded alcohol consumption.

Survey-based estimates of the amount of alcohol drunk by the 20% heaviest drinkers rely on the data analysis of the latest available national health surveys for 13 OECD countries. The list of surveys is provided in Table A.1 in Annex A in the publication *Tackling Harmful Alcohol Use – Economics and Public Health Policy* (OECD, 2015).

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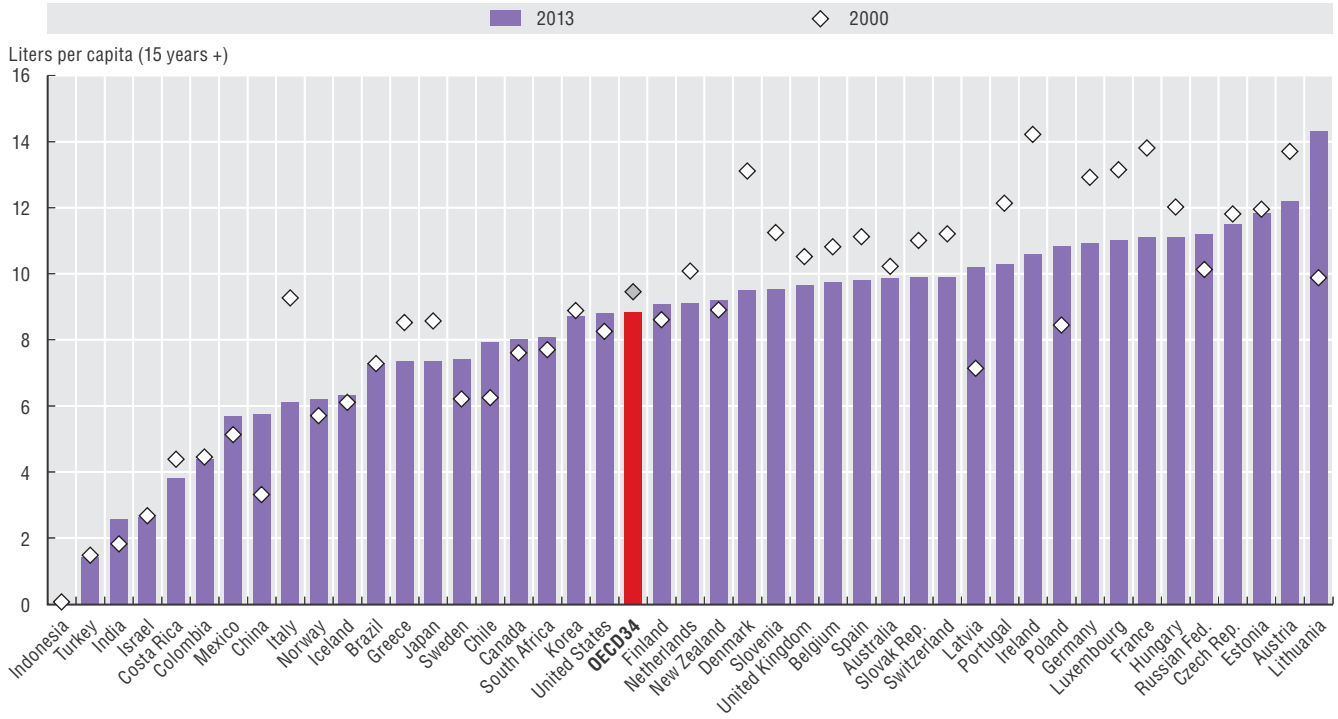
4.3. Alcohol consumption among adults, 2000 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en*; WHO for non-OECD countries.

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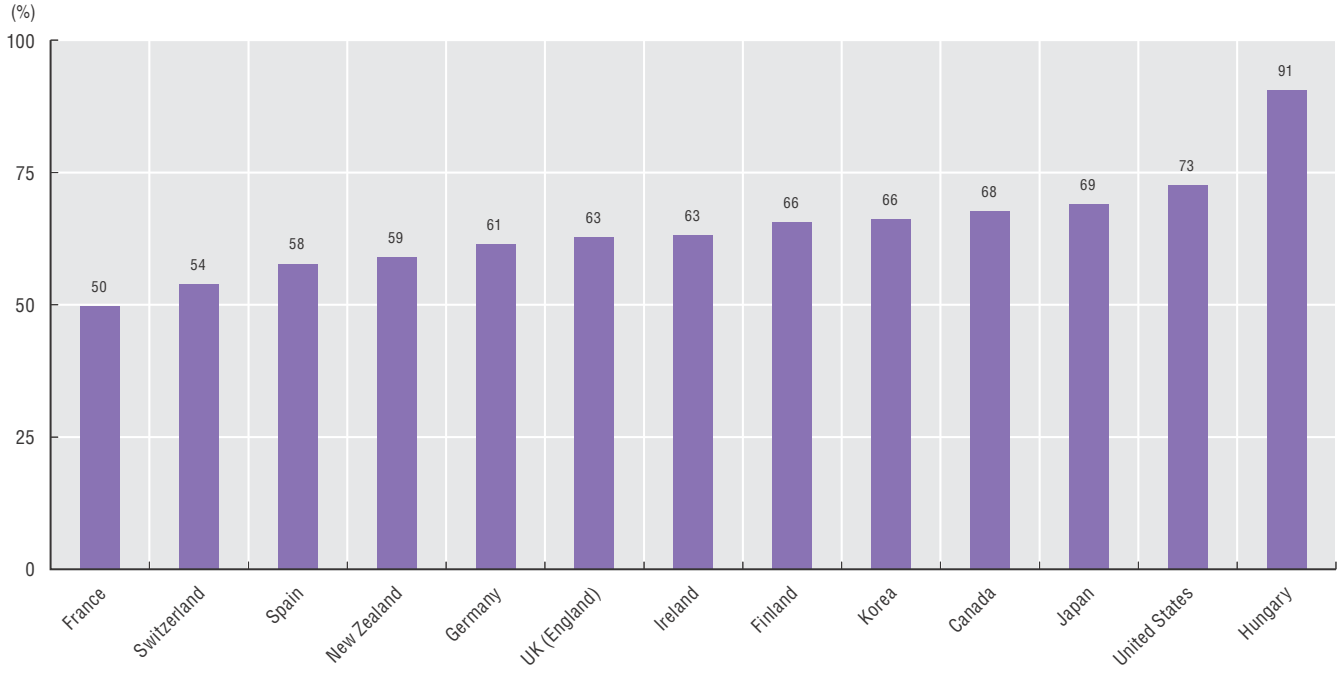
4.4. Share of total alcohol consumed by the 20% of the population who drink the most, 2012 (or nearest year)



Source: OECD (2015), *Tackling Harmful Alcohol Use – Economics and Public Health Policy.*

StatLink http://dx.doi.org/10.1787/888933280835

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Fruit and vegetable consumption among adults

Nutrition is an important determinant of health. Insufficient consumption of fruit and vegetables is one factor that can play a role in increased risk of morbidity (Bazzano et al., 2003; Riboli and Norat, 2003). Food insecurity, that is the inability to afford enough food for a healthy and active life, is also associated with adverse health effects (Seligman et al., 2010). Proper nutrition assists in preventing a number of chronic conditions, including cardiovascular disease, hypertension, type-2 diabetes, stroke, certain cancers, musculoskeletal disorders and a range of mental health conditions.

In response to a health survey question asking "How often do you eat fruit?", the percentage of adults consuming fruit daily varied from about 30% in Finland, to 94% in Australia (Figure 4.5). Across the 29 countries providing data, on average 55% of men and 66% of women reported to eat fruit daily. Women reported eating fruit more often than men in all countries except in Switzerland, with the largest gender differences in Germany, Slovenia, and Iceland (20 percentage points or more). In Australia, Greece, Mexico, and the United Kingdom, gender differences were much smaller, under 5 percentage points.

Persons aged 65 and over were more likely to eat fruit than those in younger age group; with the lowest consumption in people aged 15-24 years. Fruit consumption also varies by education level, generally being highest among persons with higher educational levels.

Daily vegetable consumption ranged from around 33% in men in Slovenia to nearly 100% in Korea, with Australia and New Zealand at about the same levels, but counting potatoes as vegetables (Figure 4.6). The average across 29 OECD countries was 61% for men and 70% for women. Again, more women than men reported eating vegetables daily in all countries, except in Korea, Australia and Mexico where vegetable consumption is not significantly different between men and women. In Sweden, Switzerland, Norway, Germany and Slovenia, gender differences exceeded 16 percentage points.

Patterns of vegetable consumption across age groups and by level of education are similar to those observed for fruit. Older persons are more likely to eat vegetables daily. Highly educated persons eat vegetables more often.

The availability of fruit and vegetables is the most important determinant of consumption. Despite large variations between countries, vegetable, and especially fruit, availability is higher in Southern European countries, with cereals and potatoes more available in Central and Eastern European countries. Fruit and vegetable availability also tends to be higher in families where household heads have a higher level of education (Elmadfa, 2009).

The promotion of fruit and vegetable consumption, especially in schools and at the workplace, features in the EU platform for action on diet, physical activity and health (European Commission, 2014).

Definition and comparability

Estimates of daily fruit and vegetable consumption are derived from national and European Health Interview Survey questions. Typically, respondents were asked "How often do you eat fruit (excluding juice)?" and "How often do you eat vegetables or salad (excluding juice and potatoes)?".

Data for Greece and Switzerland include juices as a portion of fruit, and juices and soups as a portion of vegetable. Data for Australia, Greece, New Zealand, and the United Kingdom include potatoes as vegetables. Data rely on self-reporting, and are subject to errors in recall. The same surveys also ask for information on age, sex and educational level. Data are not age standardised, with aggregate country estimates representing crude rates among respondents aged 15 years and over in all countries, except Germany and Australia which is 18 years and over.

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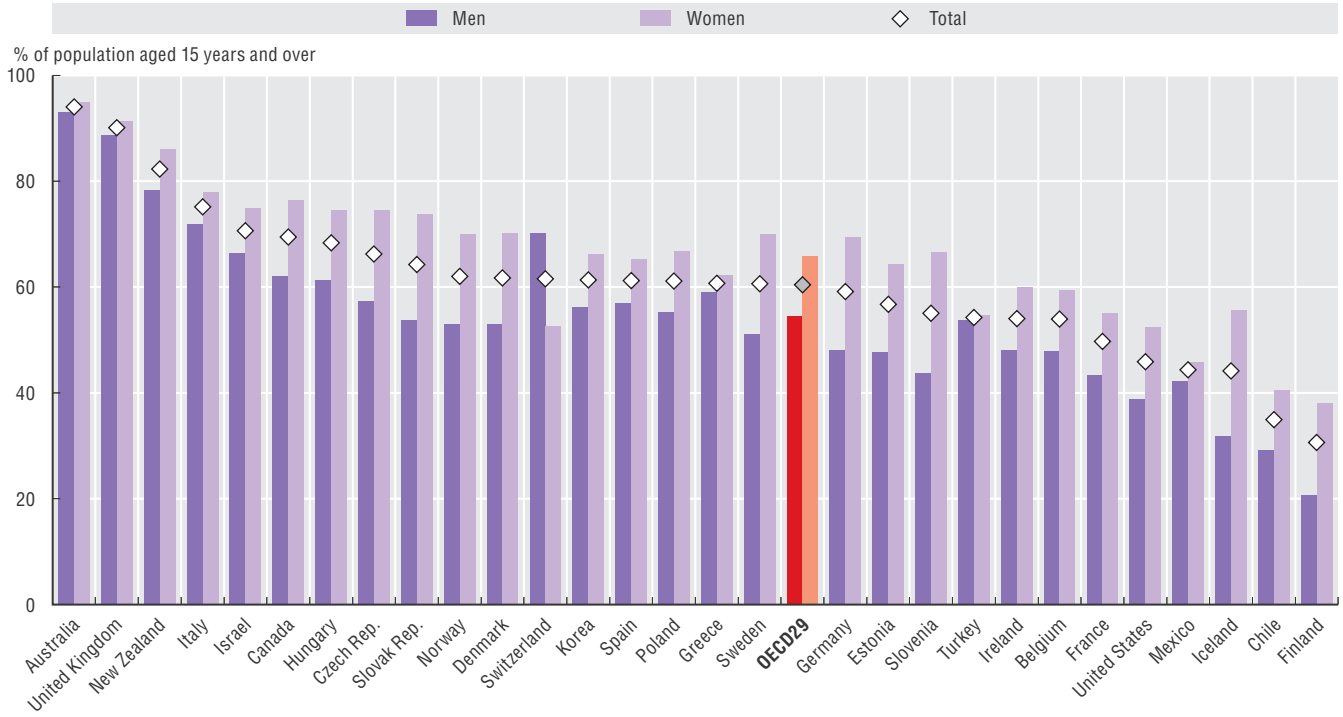
4.5. Daily fruit eating among adults, 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

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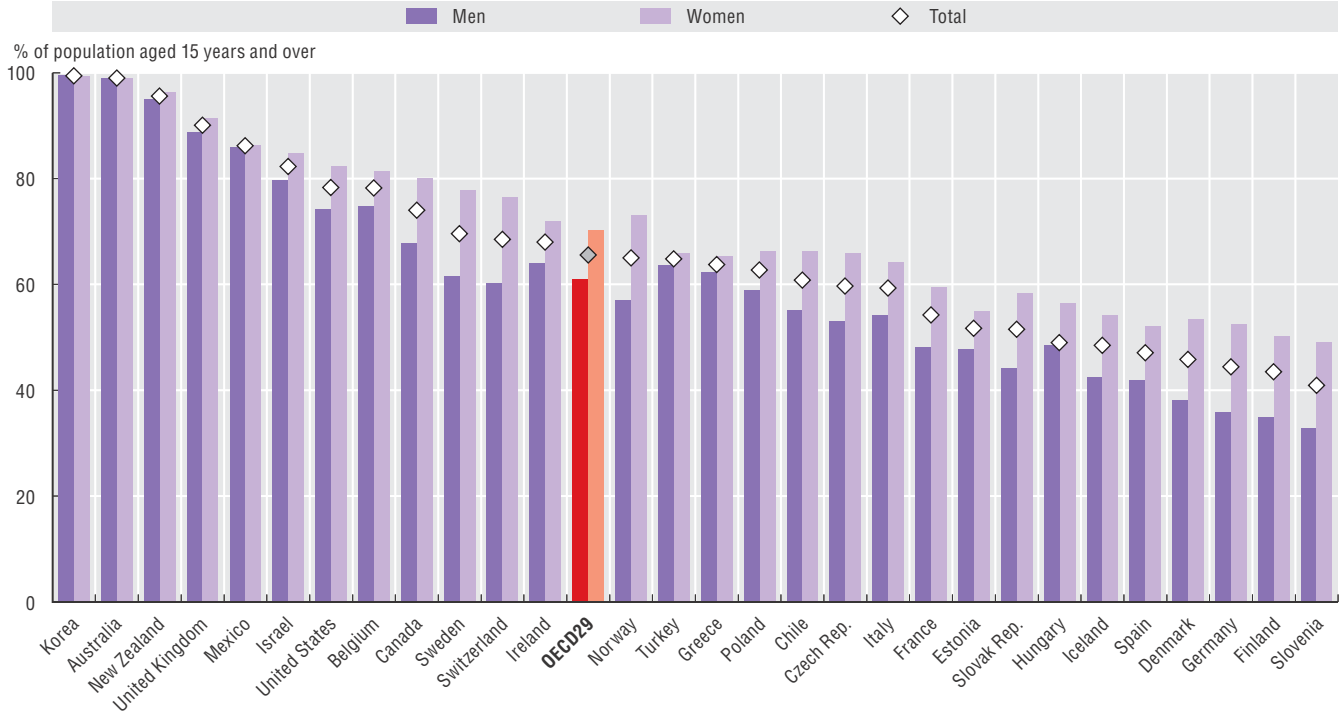
4.6. Daily vegetable eating among adults, 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*
Information on data for Israel: *http://oe.cd/israel-disclaimer*

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Obesity among adults

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. The rise in overweight and obesity is a major public health concern, threatening progress in tackling cardiovascular diseases (OECD, 2015).

Estimates of obesity and overweight are derived either from health examinations or self-reports, the former being higher and more reliable. Based on the latest available surveys, more than half (53.8%) of the adult population in OECD countries are overweight or obese. In countries where height and weight are measured (as opposed to self-reported), this proportion is even greater, at 57.5%. The prevalence of overweight and obesity among adults exceeds 50% in no less than 22 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 about six fold across OECD countries, from a low of 5% in Japan and Korea, to over 32% in Mexico and the United States (Figure 4.7). Across OECD countries, 19% of the adult population are obese. Obesity rates in men and women are similar in most countries. However, in Chile, Mexico and Turkey, as well as Colombia, the Russian Federation and South Africa, a greater proportion of women are obese, while the reverse is true in Slovenia.

The prevalence of obesity has increased over the past decade in all OECD countries (Figure 4.8). In 2013, at least one in five adults was obese in twelve OECD countries, compared to one in eight a decade ago. Since 2000, obesity rates have increased by a third or more in 14 countries. The rapid rise occurred regardless of where levels stood a decade ago. Obesity increased by around 45% in both Denmark and Australia, even though the current rate in Denmark is only half that of Australia.

The rise in obesity has affected all population groups, regardless of sex, age, race, income or education level, but to varying degrees. Evidence from Canada, the United Kingdom, France, Italy, Mexico, Spain, Switzerland and the United States shows that obesity tends to be more common in lower educated groups, especially in women (OECD, 2014). Rates of overweight and obesity vary by education level and socioeconomic status, and these disparities are significant in women while less clear-cut in men (Devaux and Sassi, 2013).

A number of behavioural and environmental factors have contributed to the long-term rise in overweight and obesity rates in industrialised countries, including the widespread availability of energy dense foods and more time spent being physically inactive. These factors have created obesogenic environments, putting people, and especially those socially vulnerable, more at risk of obesity.

A growing number of countries have adopted policies to prevent obesity from spreading further. The policy mix includes, for instance, public awareness campaigns, health professionals training, advertising limits or bans on unhealthy food, taxations and restrictions on sales of certain types of food and beverages, and nutrition labelling. Better informed consumers, making healthy food options available, encouraging physical activity and focussing on vulnerable groups are some of the areas in which progress has been made (European Commission, 2014).

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 more reliable than estimates from health interviews. Note that the OECD average is based on both types of estimates (self-reported and measured) and, thus, may be underestimated.

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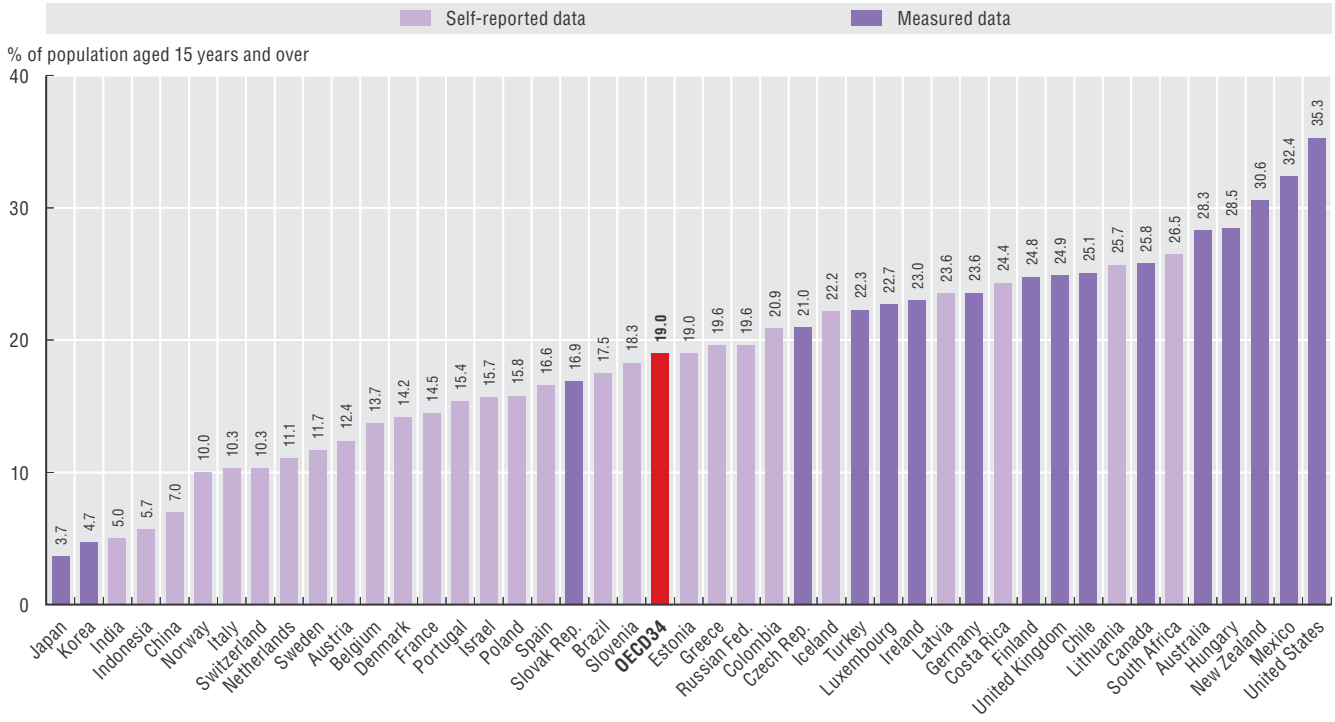
4.7. Obesity among adults, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

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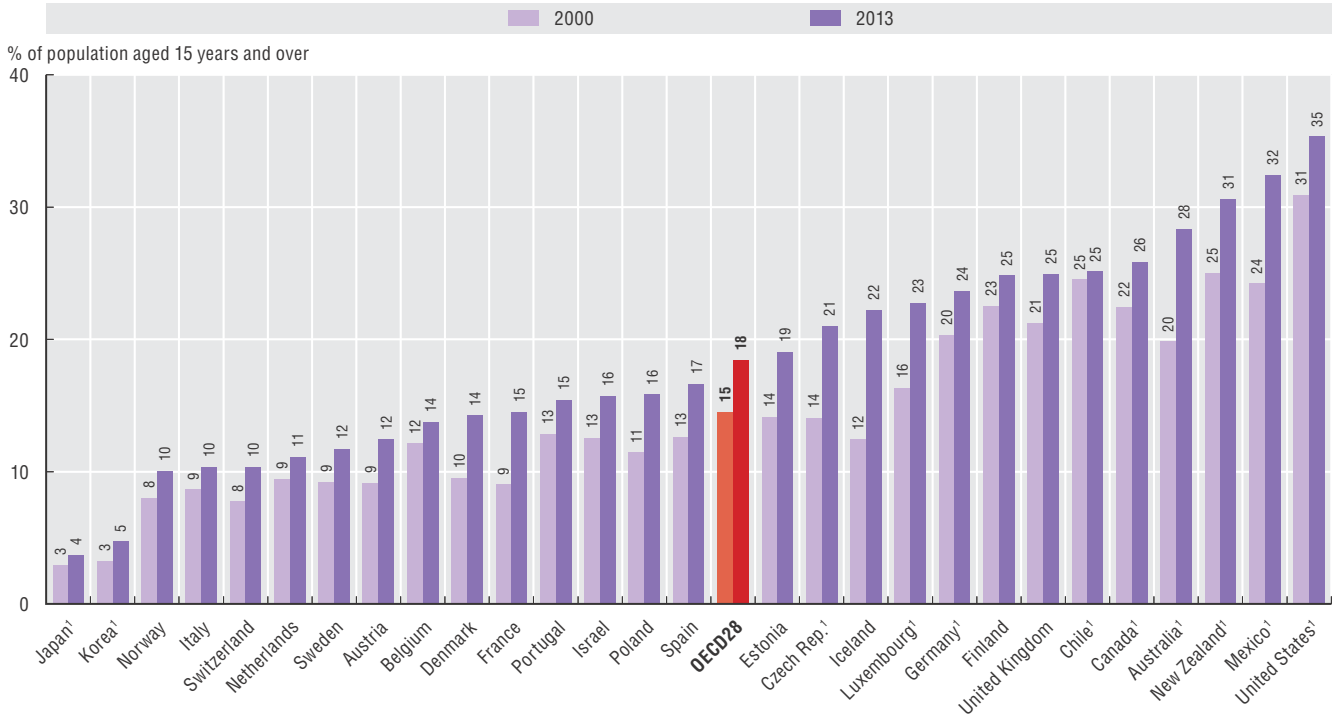
4.8. Increasing obesity among adults in OECD countries, 2000 and 2013 (or nearest years)



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

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

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Information on data for Israel: *http://oe.cd/israel-disclaimer*

Overweight and obesity among children

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

Overweight (including obesity) rates based on measured (rather than self-reported) height and weight are about 24% for boys and 22% for girls, on average, in OECD countries, although rates are measured in different age groups in different countries (Figure 4.9). Boys tend to carry excess weight more often than girls, with the largest gender differences observed in China, Denmark, Iceland, Korea and Poland. In contrast, Ireland and South Africa show larger overweight rates among girls. More than one in three children are overweight in Brazil, Chile, Greece, Italy, Mexico, New Zealand, United Kingdom (England) and the United States, and about one in three boys in Spain, and one in three girls in Portugal.

Child obesity has increased in the past few decades worldwide and seems to be stabilising in high-income countries (Ng et al., 2014; Lobstein et al., 2015). Self-reported overweight rates (including obesity) across OECD countries slightly increased between 2001-02 and 2009-10 from 13% to 15% in 15-year-olds (Figure 4.10). The largest increases during this period were in the Czech Republic, Estonia, Poland and Slovenia, all greater than 5%. Significant reductions in the proportion of overweight or obese children at age 15 were only observed in Denmark and the United Kingdom between 2001-02 and 2009-10, although non-response rates to questions about self-reported height and weight may bias the results downward.

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

Definition and comparability

Estimates of overweight and obesity are based on body mass index (BMI) calculations using either measured or self-reported height and weight, the latter possibly under-estimating obesity and overweight. Overweight and obese children are those whose BMI is above a set of age- and sex-specific cut-off points (Cole et al., 2000).

Measured data are gathered by the World Obesity Federation (WOF, former IASO) from different national studies, except for Germany (data come from the 2003-06 KIGGS survey) and Korea (based on the 2013 KNHANES survey). The estimates are based on national surveys of measured height and weight among children at various ages. Caution is therefore needed in comparing rates across countries. Definitions of overweight and obesity among children may sometimes vary among countries, although whenever possible the IOTF BMI cut-off points are used.

Self-reported data are from the Health Behaviour in School-aged Children (HBSC) surveys undertaken between 2001-02 and 2009-10. Data are drawn from school-based samples of 1 500 in each age group (11-, 13-and 15-year-olds) in most countries. Self-reported height and weight are subject to under-reporting, missing data and error, and require cautious interpretation.

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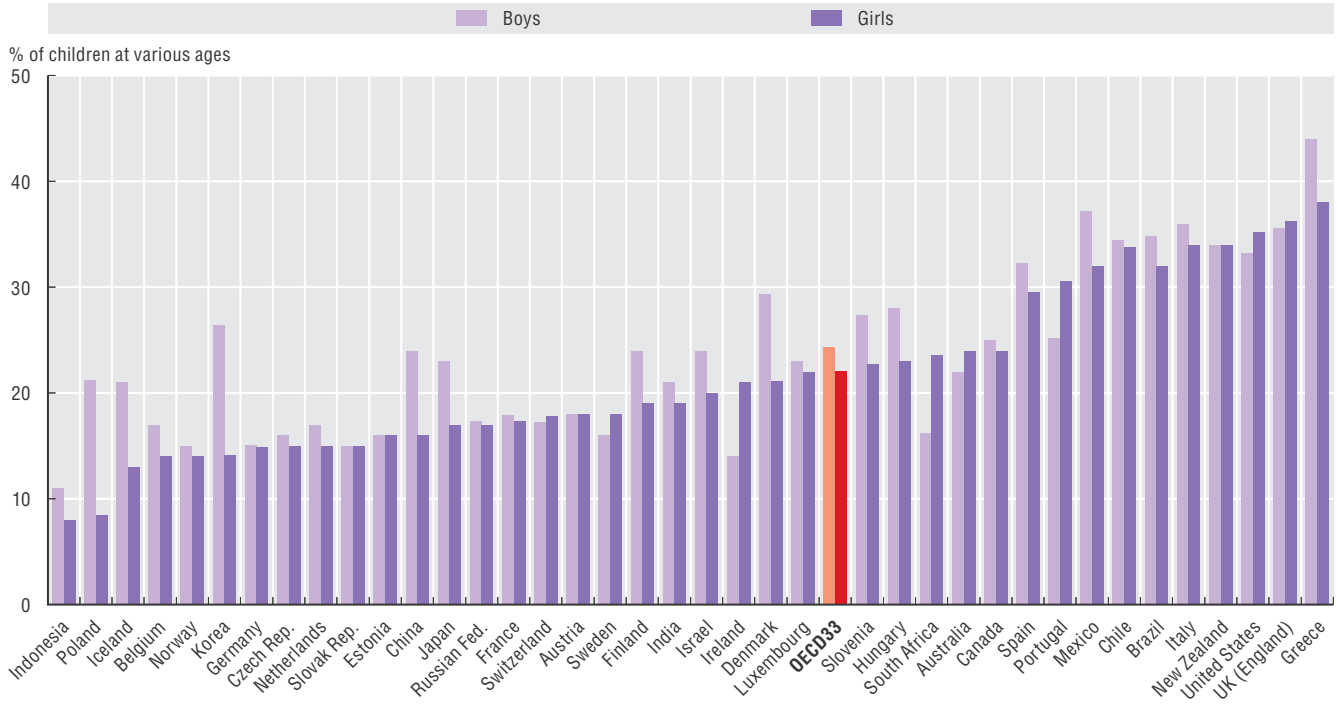
4.9. Measured overweight (including obesity) among children, 2013 (or nearest year)



Source: World Obesity Federation (2015), KIGGS (2003-06) for Germany and KNHANES (2013) for Korea.

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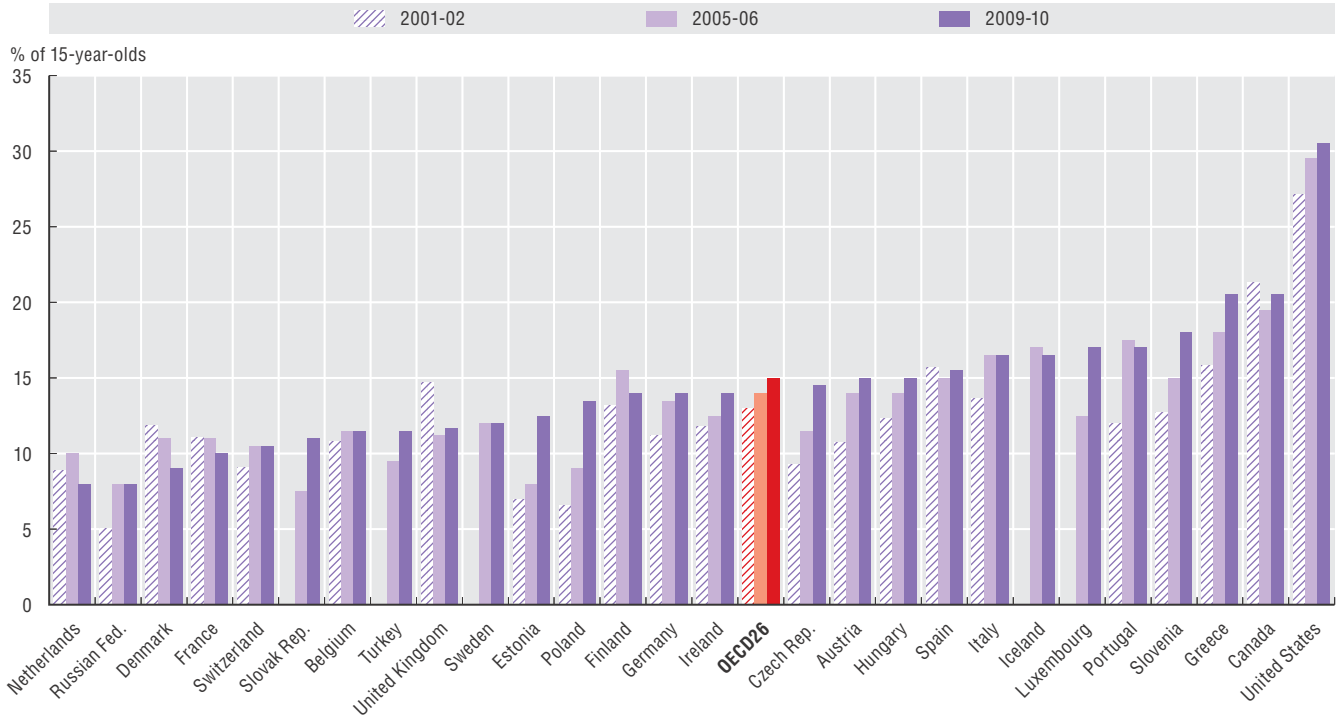
4.10. Change in self-reported overweight among 15-year-olds, 2001-02, 2005-06 and 2009-10



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

StatLink http://dx.doi.org/10.1787/888933280866

Information on data for Israel: *http://oe.cd/israel-disclaimer*

5. HEALTH WORKFORCE

Doctors (overall number)

Doctors by age, sex and category

Medical graduates

International migration of doctors

Remuneration of doctors (general practitioners and specialists)

Nurses

Nursing graduates

International migration of nurses

Remuneration of nurses

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Doctors (overall number)

The number of doctors per capita varies widely across OECD countries. In 2013, Greece had the highest number (with 6.3 doctors per 1 000 population), followed by Austria. Turkey and Chile had the lowest number among OECD countries, with slightly less than two doctors per 1 000 population. The OECD average was just over three doctors per 1 000 population. The number of doctors per capita is much lower in some partner countries. There was less than one doctor per 1 000 population in Indonesia, India and South Africa. In China, the number of doctors per capita is still about half the OECD average, but it has grown significantly since 2000 (Figure 5.1).

Since 2000, the number of doctors has grown in nearly all OECD countries, both in absolute number and on a per capita basis. The growth rate was particularly rapid in some countries which started with lower levels in 2000 (Turkey, Korea and Mexico), but also in countries which already had a large number such as Greece and Austria. In Greece, the number of doctors per capita increased strongly between 2000 and 2008, but has stabilised since then. The number of doctors has also increased strongly in Australia and the United Kingdom (Figure 5.2), driven mainly by a strong rise in the number of graduates from domestic medical education programmes (see indicator on medical graduates).

On the other hand, the number of physicians per capita remained fairly stable between 2000 and 2013 in Estonia, France, Israel and the Slovak Republic. In France, the number of doctors increased by 10%, more or less at the same pace as the population size.

The number of doctors has continued to grow in most OECD countries following the 2008-09 recession, although the growth slowed down in some countries such as Greece. In the United Kingdom, the growth did not slow down much; there were 15% more employed doctors in 2013 than in 2008 (Figure 5.2).

Projecting the future supply and demand of doctors is challenging given the high levels of uncertainty concerning their retirement and migration patterns and their demand (Ono, Lafortune and Schoenstein, 2013). In Australia, a recent projection exercise based on a status quo policy scenario estimated that there may be an over-supply of doctors by 2017 before moving to an under-supply from 2020 to 2030. This projection exercise explored different scenarios that may either mitigate or exacerbate these imbalances. If the demand for doctors is growing at a slightly slower pace than projected because of slower GDP growth, the projected shortage in the next decade may disappear and there may be a slight over-supply of doctors by 2030. On the other hand, if there is a sharp reduction in the number of immigrant doctors, a growing number of domestic medical graduates would be required to close any projected gap (Health Workforce Australia, 2014).

Many countries have anticipated the upcoming retirement of a significant number of doctors by increasing their training efforts over the past decade to ensure that there would be enough new doctors to replace those who will retire. In some countries where domestic training efforts increased (e.g., the United Kingdom and the Netherlands), there have been recent concerns of possible surpluses of certain categories of doctors in the years ahead. This has led to recommendations to reduce slightly student intakes in medical schools and post-graduate training programmes for certain specialties (CfWI, 2012; ACMMP, 2014).

In many countries, current concerns focusses more specifically on shortages of general practitioners (see the indicator related to doctors by age, sex and category) or the undersupply of doctors in rural and remote regions (see the indicator on the geographic distribution of doctors in Chapter 7).

Definition and comparability

The data for most countries refer to practising 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. The data for Ireland are based on estimations. Several countries also include doctors who are active in the health sector even though they may not provide direct care to patients, adding another 5-10% of doctors. Portugal reports the number of physicians entitled to practice, resulting in a larger over-estimation of the number of practicing doctors of about 30%. Belgium and Luxembourg set a minimum threshold of activities for doctors to be considered to be practising, thereby resulting in an under-estimation compared with other countries which do not set such minimum thresholds. Data for India are likely over-estimated as they are based on medical registers which are not updated to account for migration, retirement or death, nor do they take into account doctors registered in multiple states.

References

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CfWI – Centre for Workforce Intelligence (2012), *A Strategic Review of the Future Healthcare Workforce: Informing Medical and Dental Student Intakes*, London.

Health Workforce Australia (2014), *Australia's Future Health Workforce – Doctors*, Canberra.

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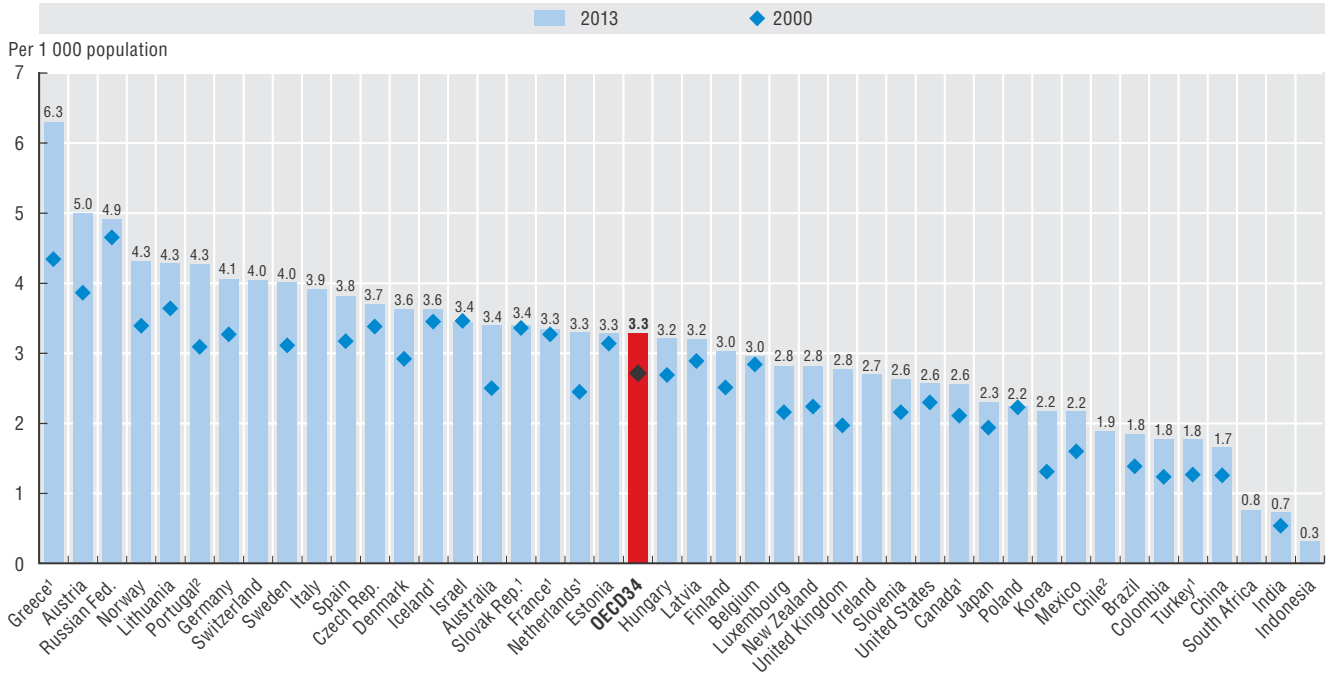
5.1. Practising doctors per 1 000 population, 2000 and 2013 (or nearest year)

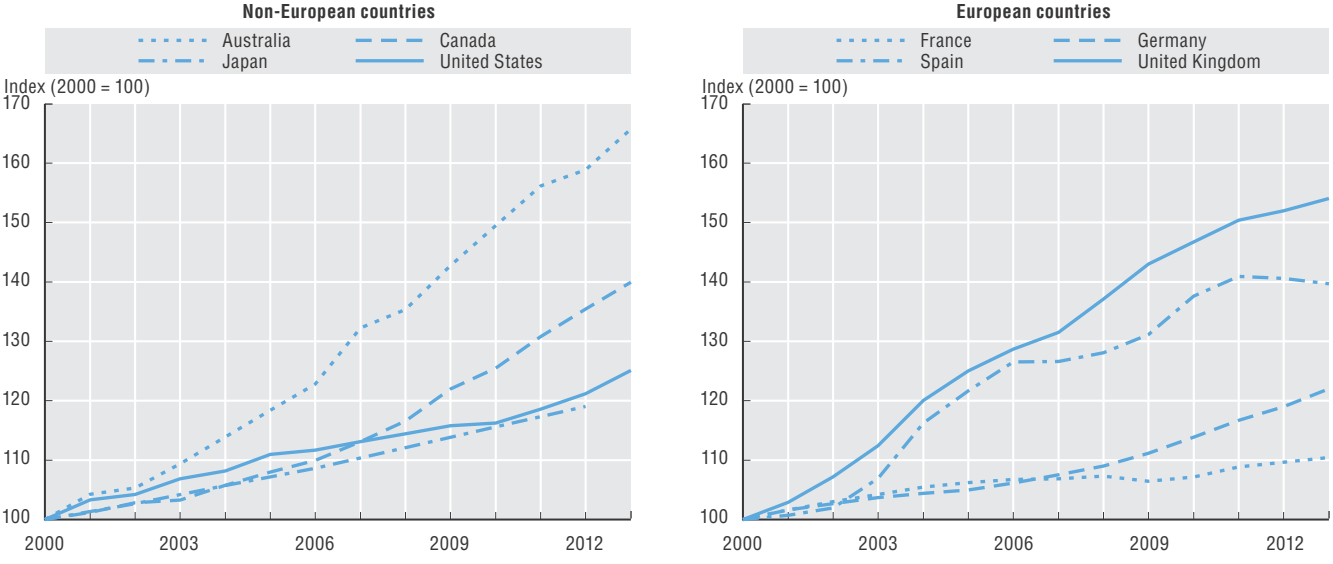


1. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).
2. Data refer to all doctors licensed to practice (resulting in a large over-estimation of the number of practising doctors in Portugal, of around 30%).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280876

5.2. Evolution in the number of doctors, selected OECD countries, 2000 to 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280876

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Doctors by age, sex and category

Beyond the overall number of doctors, the age and gender composition of the medical workforce and the mix between different categories of doctors also have important implications on the supply of medical services. The ageing of doctors in OECD countries has, for many years, raised concerns that there may not be sufficient new recruits to replace them, although there is evidence that the retirement of doctors often only occurs gradually and that their retirement age is increasing (Pong, 2011). The rising share of female doctors may affect the overall supply of medical services, as women tend to work fewer hours than men, although it appears that working time preferences are becoming more similar among new generations of men and women doctors. The growing imbalance in favour of greater specialisation over general medicine raises concerns in many countries about access to primary care for all the population.

In 2013, on average across OECD countries, one-third of all doctors were over 55 years of age, up from one-fifth in 2000 (Figure 5.3). While these doctors might be expected to retire over the next ten years, a growing number of doctors continue to practice after 65 years. In Israel and Italy, almost half (49%) of all doctors were over 55 years of age in 2013, but in Israel this high share may be due partly to the fact that these numbers relate to all doctors licensed to practice (and some of them may no longer be practicing). By contrast, only about 15% of doctors in the United Kingdom and Korea were aged over 55 due to large numbers of new graduates entering medical practice over the past decade (see the indicator on medical graduates).

Pension reforms, as well as a possible greater willingness and capacity of many doctors to work longer, are likely to have a significant impact on future replacement needs. Several OECD countries have reformed their pension systems and increased the retirement age to take into account longer life expectancy. While few studies have examined the impact of these pension reforms specifically on doctors, it is likely that they will prolong working lives after age 65 in the coming years.

In 2013, 45% of doctors on average across OECD countries were women, up from 38% in 2000 and 29% in 1990 (Figure 5.4). At least half of all doctors now are women in 10 countries. By contrast, only about one-in-five doctors in Japan and Korea were women in 2013.

The balance between generalists and specialists has changed over the past few decades, with the number of specialists increasing much more rapidly, raising concerns in many countries about shortages of general practitioners. On average across OECD countries, generalists made up only about 30% of all physicians in 2013; there were more than two specialists for every generalist (Figure 5.5). Medical specialists greatly outnumber generalists in Central and Eastern European countries and in Greece. Some countries such as France, Canada and Australia have been able to maintain a more equal balance between specialists and generalists. In Ireland and Portugal, most generalists are not really general practitioners, but rather non-specialist doctors working in hospitals or other settings. In some countries such as the United States, general internal medicine doctors are categorised as specialists although their practice is often very similar to that of general practitioners, resulting in some underestimation of the capacity to provide generalist care.

In most OECD countries, specialists earn more than general practitioners, providing financial incentives for doctors to specialise (see indicator on the remuneration of doctors). In response to concerns about shortages of general practitioners, many countries have taken steps to improve the number of training places in general medicine. For example, in France, about 50% of all post-graduate medical training places are reserved for general medicine (DREES, 2014). In Canada, the number of post-graduate training places in family medicine more than doubled between 2000 and 2013, as part of a national effort to strengthen access to primary care for the whole population (CAPER, 2015). However, for these training policies to have lasting effects on the composition of the medical workforce, they need to be complemented by other measures to improve the employment and remuneration conditions of general practitioners in order to attract and retain a sufficient number of new doctors.

Definition and comparability

The definition of doctors is provided under the previous indicator. In some countries, the data are based on all doctors licensed to practice, not only those practising (e.g., Ireland and Portugal). Not all countries are able to report all their physicians in the two broad categories of specialists and generalists. This may be due to the fact that specialty-specific data are not available for doctors in training or for those working in private practice.

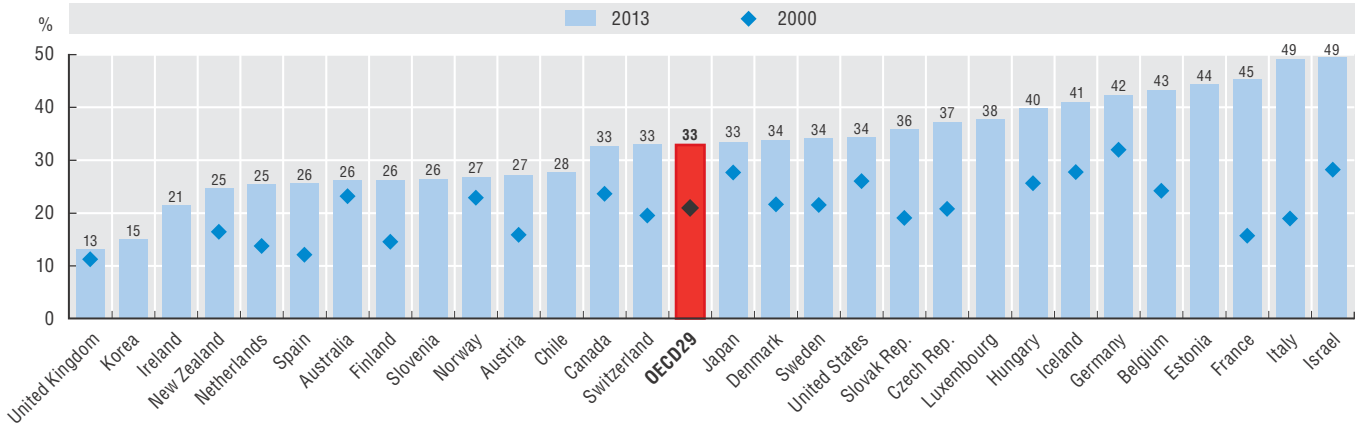
References

CAPER – Canadian Post-M.D. Education Registry (2015), *Field of Post-M.D. Training by Faculty of Medicine Providing Post-M.D. Training 2013-2014*, database available at *www.caper.ca*.

DREES (2014), "Les affectations des étudiants en médecine à l'issue des épreuves classantes nationales en 2013" [The allocations of medical students following national ranking exams in 2013], *Études et Résultats*, No. 894.

Pong, R.W. (2011), *Putting Up the Stethoscope for Good?*, CIHI, available at *www.cihi.ca*.

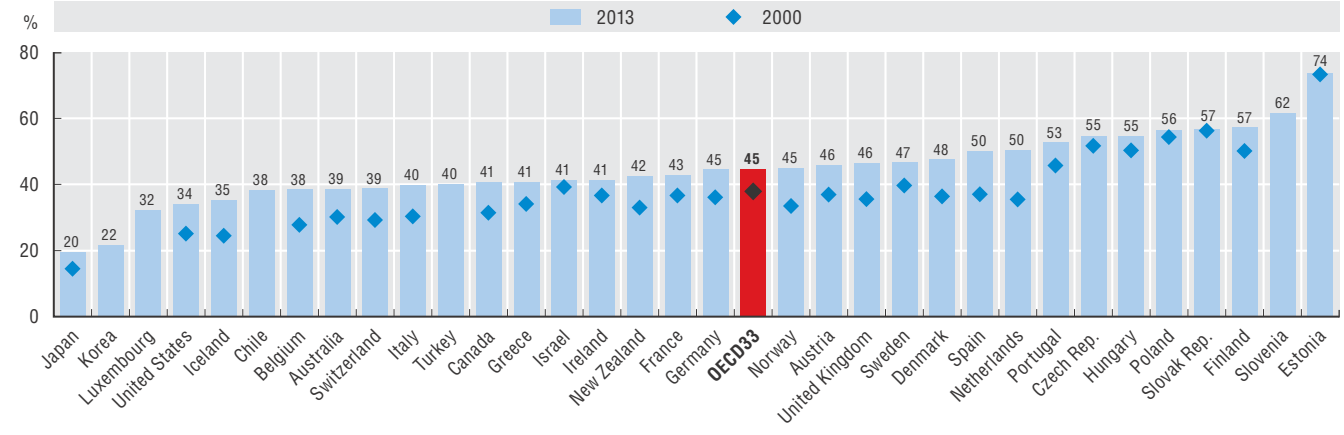
5.3. Share of doctors aged 55 years and over, 2000 and 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280883

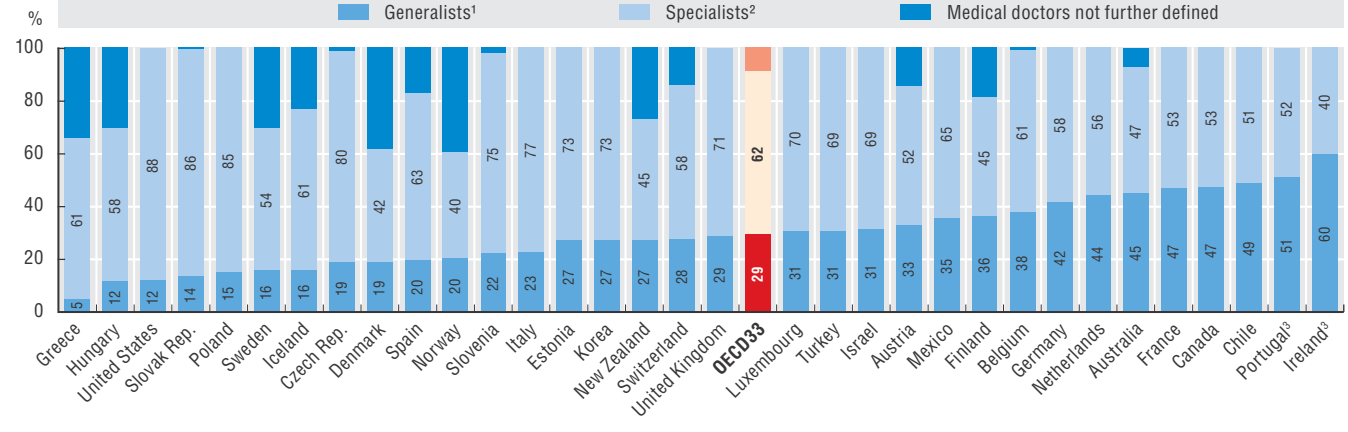
5.4. Share of female doctors, 2000 and 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280883

5.5. Generalists and specialists as a share of all doctors, 2013 (or nearest year)



1. Generalists include general practitioners/family doctors and other generalist (non-specialist) medical practitioners.
2. Specialists include paediatricians, obstetricians/gynaecologists, psychiatrists, medical, surgical and other specialists.
3. In Ireland and Portugal, most generalists are not GPs ("family doctors"), but rather non-specialist doctors working in hospitals or other settings. In Portugal, there is some double-counting of doctors with more than one specialty.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933280883

Medical graduates

The number of new medical graduates in a given year reflects to a large extent government decisions taken a few years earlier on the number of students admitted in medical schools (so-called *numerus clausus* policies). Since 2000, most OECD countries have increased the number of students admitted to medical education in response to concerns about current or possible future shortages of doctors (OECD, forthcoming), but large variations remain across countries.

In 2013, there were on average about 12 new medical graduates per 100 000 population across OECD countries (Figure 5.6). This proportion was highest in Ireland, whereas Israel and Japan had the lowest number of new medical graduates relative to their population. In Ireland, the number of medical graduates increased strongly in 2013 due at least partly to the opening of new Graduate Entry Programmes a few years earlier, allowing students with an undergraduate degree in another discipline to obtain a medical degree in four years only. In Israel, the low number of domestic medical graduates is compensated by the high number of foreign-trained doctors. About one-third of foreign-trained doctors in Israel are in fact people who were born in the country but have pursued their study abroad before coming back. The situation is quite different in Japan, where there are very few foreign-trained doctors. Since 2008, the Japanese government decided to increase intakes in medical education in response to current and projected shortages of doctors, which should lead to a growing number of medical graduates in the coming years.

Following the expansion of the *numerus clausus* in most countries over the past fifteen years, the number of medical graduates has increased, though at different paces (Figure 5.7). In Australia, the number of medical graduates increased by two-and-a-half times between 2000 and 2013. Most of this growth reflects an increase in the number of domestic students, but there has also been a growing number of international students in medical schools in Australia.

In the United Kingdom, the number of medical graduates doubled between 2000 and 2013, reflecting an effort to increase the domestic supply and rely less on foreign-trained doctors. Most of the increase in admission in medical schools occurred between 2000 and 2004. In 2013, the number of graduates decreased slightly for the first time, and so did the number of students admitted in medical schools following a 2% reduction in medical school intakes based on a projected oversupply of doctors in the coming years (Department of Health, 2012).

In France, the number of medical graduates has increased steadily since 2006 following a large increase in the *numerus clausus* between 2000 and 2006. However, the number of graduates should stabilize in the coming years, as admission quotas have remained fairly stable over the past few years.

In the United States, the increase in admission intakes to medical schools occurred a bit later than in several other countries, mainly after 2005, so the number of medical graduates has only started to go up recently. In addition to the growing number of medical graduates from American universities, there has also been a growing number of American students who have gone to study abroad (notably in Caribbean countries), with the intention of coming back to complete their post-graduate training and practice in the United States. This is expected to create additional pressures to increase the number of residency posts to allow both domestic graduates and US foreign-trained graduates to complete their post-graduate training.

In Nordic countries, there has been a fairly steady rise in the number of medical graduates, with the number of graduates in Finland and Norway rising by about 50% between 2000 and 2013. Many Norwegian students also go to study medicine abroad, notably in Germany, Poland and Hungary, with the intention of coming back to practice in their country.

There has also been a strong rise in the number of medical graduates in the Czech Republic, Hungary and Poland. This sharp increase can be explained partly by the growing number of international students choosing these countries to purse their medical studies. International students accounted for about 30% of all medical graduates in the Czech Republic in recent years.

This growing internationalisation of medical education, combined with the international migration of already trained doctors, makes it more difficult for national governments to set their own domestic *numerus clausus* policies, given that these policies may be affected by policies and actions taken by actors in other countries (OECD, forthcoming).

Definition and comparability

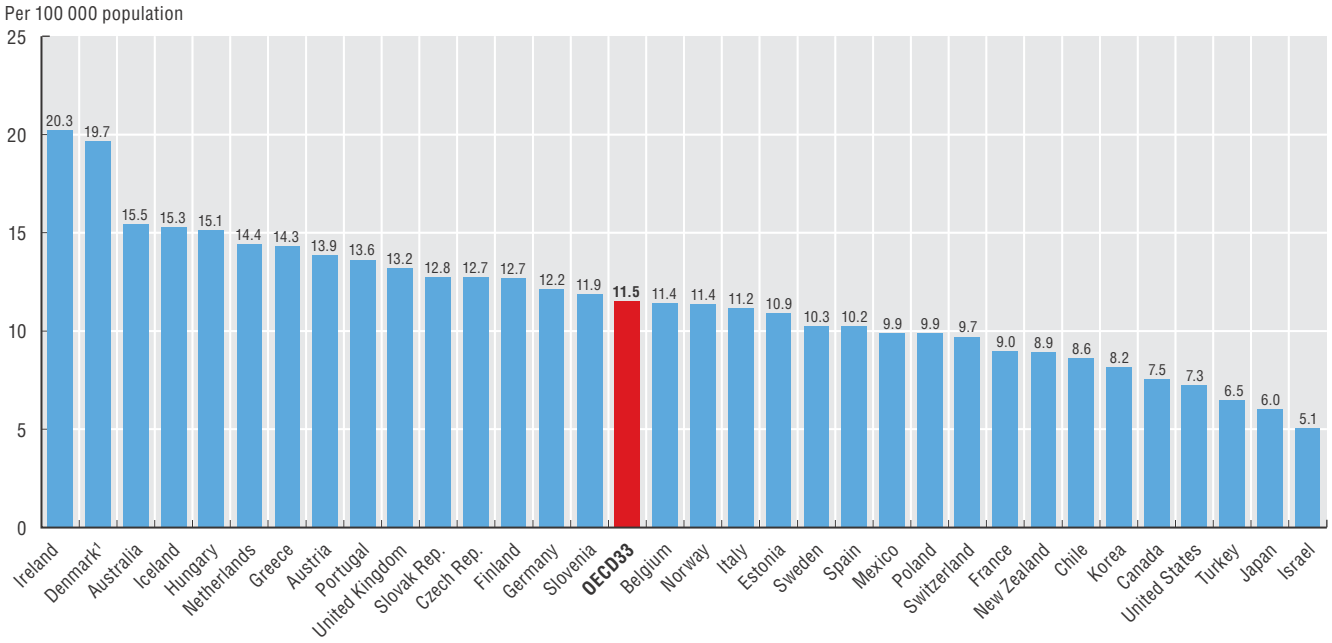
Medical graduates are defined as the number of students who have graduated from medical schools in a given year. The data for Austria and the United Kingdom exclude foreign graduates, while other countries include them. In Denmark, the data refer to the number of new doctors receiving an authorisation to practice, which may result in an over-estimation if these include a certain number of foreign-trained doctors.

References

Department of Health (2012), "The Health and Education National Strategic Exchange – Review of Medical and Dental School Intakes in England", UK Government.

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), OECD Publishing, Paris.

5.6. Medical graduates, 2013 (or nearest year)

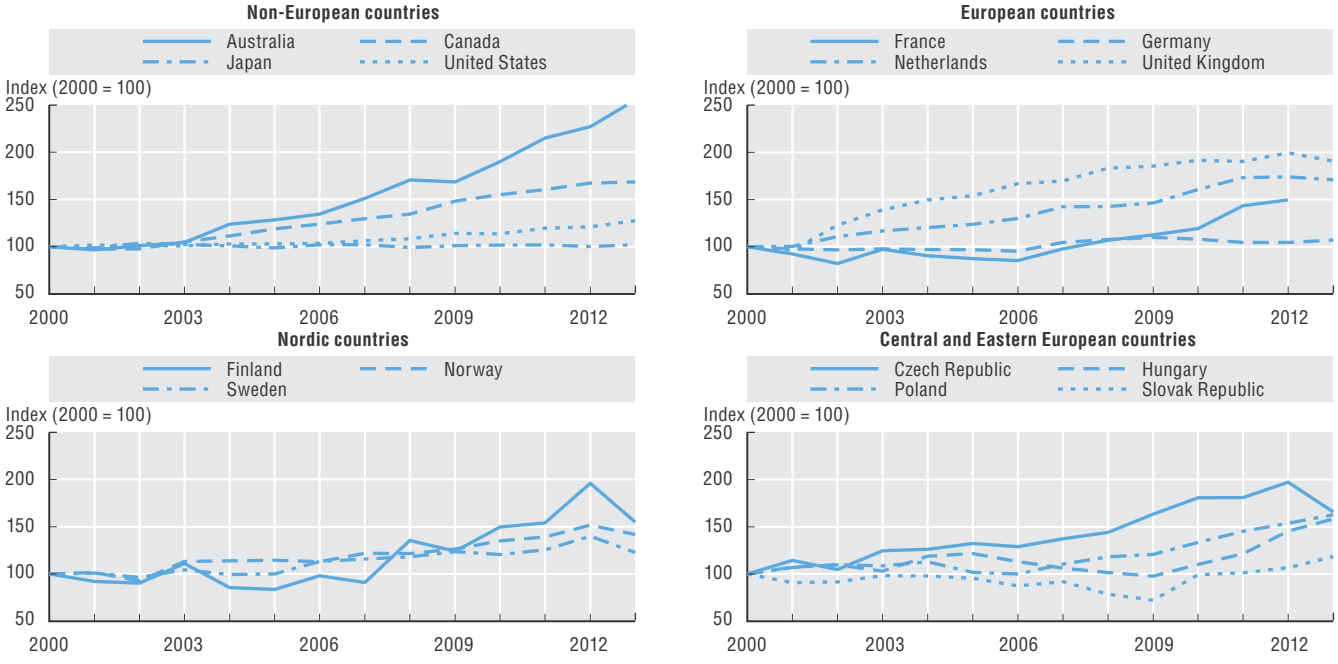


1. In Denmark, the number refers to new doctors receiving an authorisation to practice, which may result in an over-estimation if these include foreign-trained doctors.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280892

5.7. Evolution in the number of medical graduates, selected OECD countries, 2000 to 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280892

Information on data for Israel: *http://oe.cd/israel-disclaimer*

International migration of doctors

The international migration of doctors and other health workers is not a new phenomenon, but has drawn a lot of attention in recent years because of concerns that it might exacerbate shortages of skilled health workers in certain countries, particularly in some developing countries that are already suffering from critical workforce shortages. The Global Code of Practice on the International Recruitment of Health Personnel, adopted by the World Health Assembly in May 2010, was designed to respond to these concerns. It provides an instrument for countries to promote a more ethical recruitment of health personnel, encouraging countries to achieve greater "self-sufficiency" in the training of health workers, while recognising the basic human right of every person to migrate.

There are significant differences across OECD countries in the proportion of doctors trained abroad. In 2013, the share of foreign-trained doctors ranged from less than 3% in Turkey, Poland, Estonia, the Netherlands and the Czech Republic to more than 40% in Israel and New Zealand (Figure 5.8). The very high proportion of foreign-trained doctors in Israel reflects not only the importance of immigration in this country, but also that a large number of new licenses are issued to people born in Israel but trained abroad (one-third in 2013). Norway, Ireland and Australia also have a high share of foreign-trained doctors, although in Norway roughly half of foreign-trained doctors are people who were born in the country but went to pursue their medical studies in another country. The share of foreign-trained doctors in the United Kingdom, Switzerland, the United States, Sweden and Canada varies between 23% and 30%.

Since 2000, the number and share of foreign-trained doctors has increased in many OECD countries (Figure 5.9), contributing to the overall rise in the number and density of doctors. In the United States and the United Kingdom, the share has remained relatively stable over time, but the absolute number of doctors trained abroad has continued to increase more or less at the same pace as the number of domestically-trained doctors (OECD, forthcoming). Sweden has experienced a strong rise in the number and share of foreign-trained doctors, with most of these foreign-trained doctors coming from Germany, Poland and Iraq. The number and share of foreign-trained doctors has also increased in France and Germany, though at a slower pace. In France, the rise is partly due to a fuller recognition of the qualifications of foreign-trained doctors who were already working in the country, as well as the inflow of doctors from new EU member states, notably Romania.

In absolute numbers, the United States has by far the highest number of foreign-trained doctors, with more than 200 000 doctors trained abroad in 2013. Following the United States is the United Kingdom with more than 48 000 foreign-trained doctors in 2014. The composition of migration flows by country of origin depends on several factors, including: i) the importance of migratory ties; ii) language; and iii) recognition of qualifications. Figure 5.10 provides an illustration of the distribution of the countries of training for the two main OECD receiving countries, the United States and the United Kingdom. Nearly 50% of foreign-trained doctors in the United States come from Asian countries, with doctors coming from India representing by far the largest number, followed by the Philippines and Pakistan. More than 10% of doctors were trained in the Caribbean Islands, but in many cases these were American students who went to study abroad and then came back to the United States to complete their post-graduate training and practice. Most foreign-trained doctors in the United Kingdom also came from Asian countries, with India also leading by a wide margin, although a growing number of foreign-trained doctors in the United Kingdom come from other EU countries.

Even if smaller countries in Africa, Asia or Central and Eastern Europe lose a small number of doctors in absolute terms, this may nonetheless have a large impact on their health systems. There is growing recognition that OECD countries should avoid actively recruiting from countries that are suffering from acute shortages of doctors.

Definition and comparability

The data relate to foreign-trained doctors working in OECD countries measured in terms of total stocks. The OECD health database also includes data on the annual flows for most of the countries shown here, as well as by country of origin. The data sources in most countries are professional registries or other administrative sources.

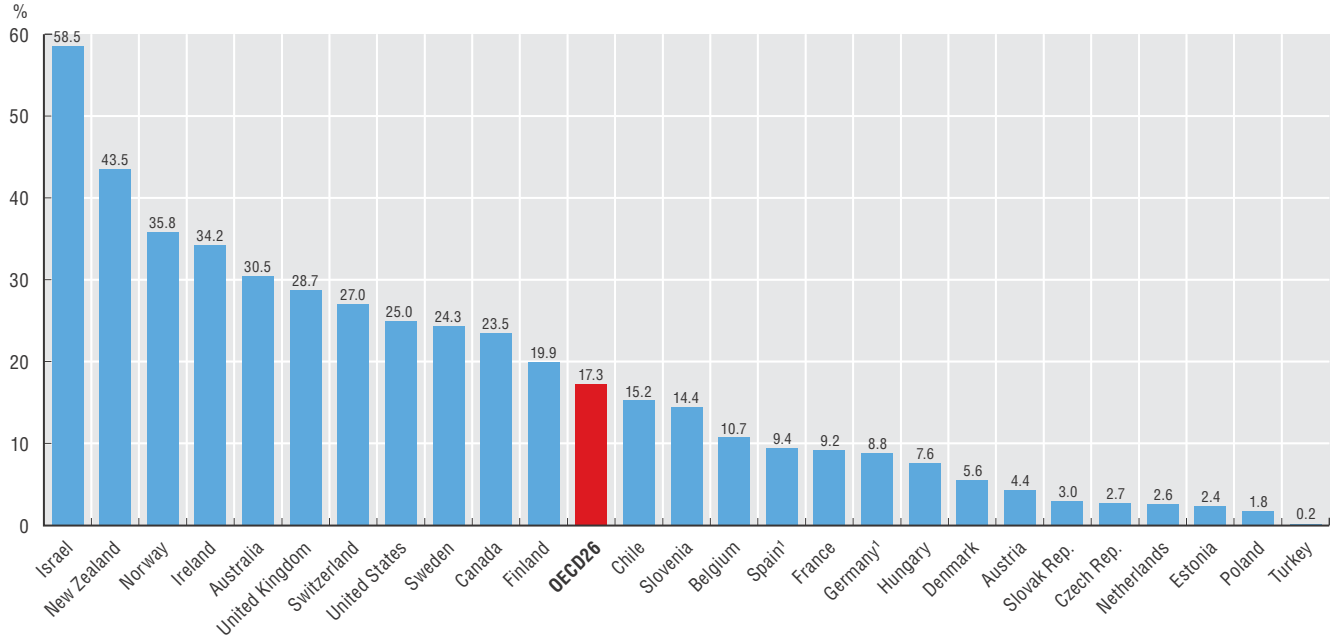
The main comparability limitation relates to differences in the activity status of doctors. Some registries are regularly updated, making it possible to distinguish doctors who are still actively working in health systems, while other sources include all doctors licensed to practice, regardless of whether they are still active or not. The latter will tend to over-estimate not only the number of foreign-trained doctors, but also the total number of doctors (including the domestically-trained), making the impact on the share unclear. The data source in some countries includes interns and residents, while these physicians in training are not included in other countries. Because foreign-trained doctors are often over-represented in the categories of interns and residents, this may result in an under-estimation of the share of foreign-trained doctors in countries where they are not included (e.g., France, Hungary, Poland and Switzerland).

The data for Germany and Spain is based on nationality (or place of birth in the case of Spain), not on the place of training.

References

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), Chapter on "Changing patterns in the international migration of doctors and nurses", OECD Publishing, Paris.

5.8. Share of foreign-trained doctors in OECD countries, 2013 (or nearest year)

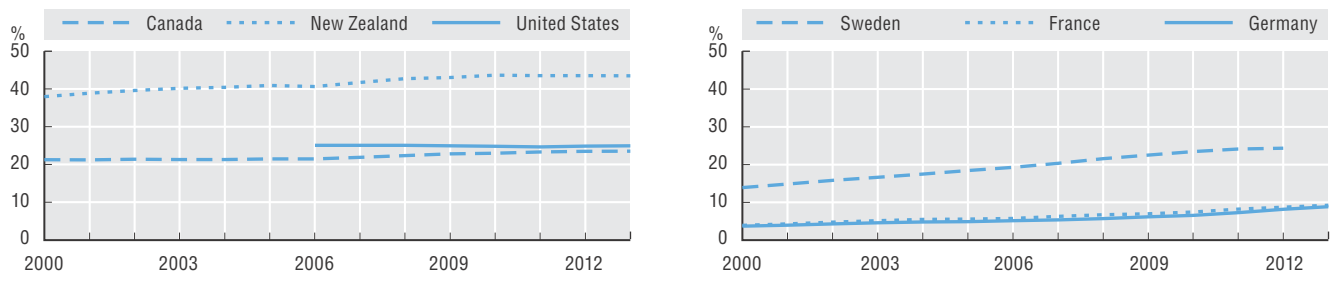


1. In Germany and Spain, the data is based on nationality (or place of birth in Spain), not on the place of training.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280906

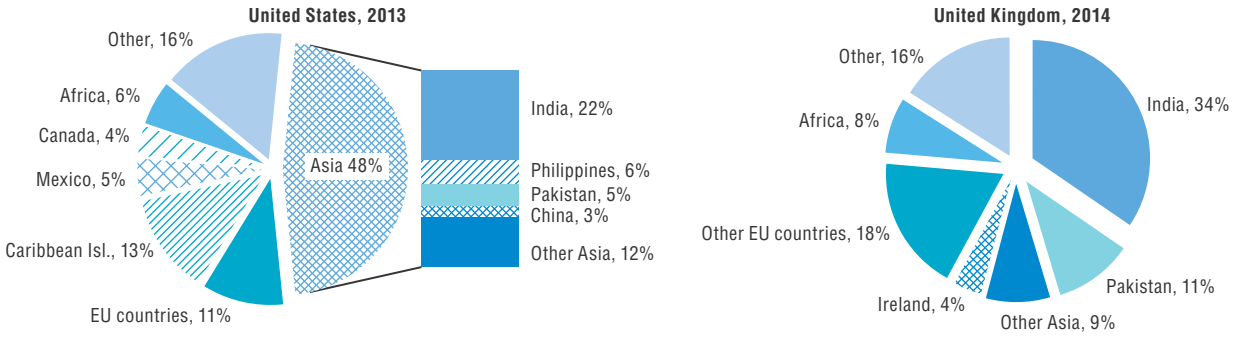
5.9. Evolution in the share of foreign-trained doctors, selected OECD countries, 2000 to 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280906

5.10. Main countries of training of foreign-trained doctors, United States and United Kingdom



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280906

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Remuneration of doctors (general practitioners and specialists)

The remuneration level for different categories of doctors has an impact on the financial attractiveness of different medical specialties. In many countries, governments influence the level and structure of physician remuneration by being one of the main employers of physicians or purchaser of their services, or by regulating their fees.

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 private 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, the remuneration of doctors (both generalists and specialists) is much higher than that of the average worker in all OECD countries (Figure 5.11). Self-employed general practitioners in Australia earned about two times the average wage in 2013 (although this is an underestimation as it includes the remuneration of physicians in training), whereas in Austria, Canada, Denmark, the Netherlands, Luxembourg and the United Kingdom, self-employed GPs earned about three times the average wage in the country.

In most countries, GPs earn less than specialists, and in many cases much less. In Canada and the Netherlands, self-employed specialists earned about 4.5 times the average wage in 2013, in Germany, it was over five times, while in Belgium and Luxembourg, they earned more than six times the average wage (although in Belgium their remuneration include practice expenses, thereby resulting in an over-estimation). In France, self-employed specialists earned almost four times the average wage, compared with just over two times for salaried specialists and self-employed GPs. The income gap between GPs and specialists is particularly large in Belgium and the Netherlands.

In many OECD countries, the income gap between general practitioners and specialists has continued to widen over the past decade, reducing the financial attractiveness of general practice (Figure 5.12). Since 2005, the remuneration of specialists has risen faster than that of general practitioners in Canada, Finland, France, Hungary, Iceland, Israel, Luxembourg and Mexico. On the other hand, in Austria, Belgium and the Netherlands, the gap has narrowed slightly, as the income of GPs grew faster than that of specialists.

In many OECD countries, the economic crisis which started in 2008-09 had a significant impact on the remuneration of doctors and other health workers. Several European countries hard hit by the recession either froze or cut down, at least temporarily, the wages or fees of doctors in efforts to reduce cost while protecting access to care for the population. This has been the case in countries such as Estonia, France, Ireland, Italy and Slovenia, where doctors saw their remuneration decrease in nominal terms in certain years after the crisis. However, in more recent years, the remuneration of doctors and other health workers have started to rise again (OECD, forthcoming).

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 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 and Italy); 2) incomes from private practices for salaried doctors are not included in some countries (e.g. Czech Republic, Hungary, Iceland, Ireland and Slovenia); 3) informal payments, which may be common in certain countries (e.g. Greece and Hungary), are not included; 4) data relate only to public sector employees who tend to earn less than those working in the private sector in Chile, Denmark, Greece, Hungary, Iceland, Ireland, Norway, the Slovak Republic and the United Kingdom; and 5) physicians in training are included in Australia, the Czech Republic and the United Kingdom for specialists.

The data for some countries include part-time workers, while in other countries the data refer only to doctors working full time.

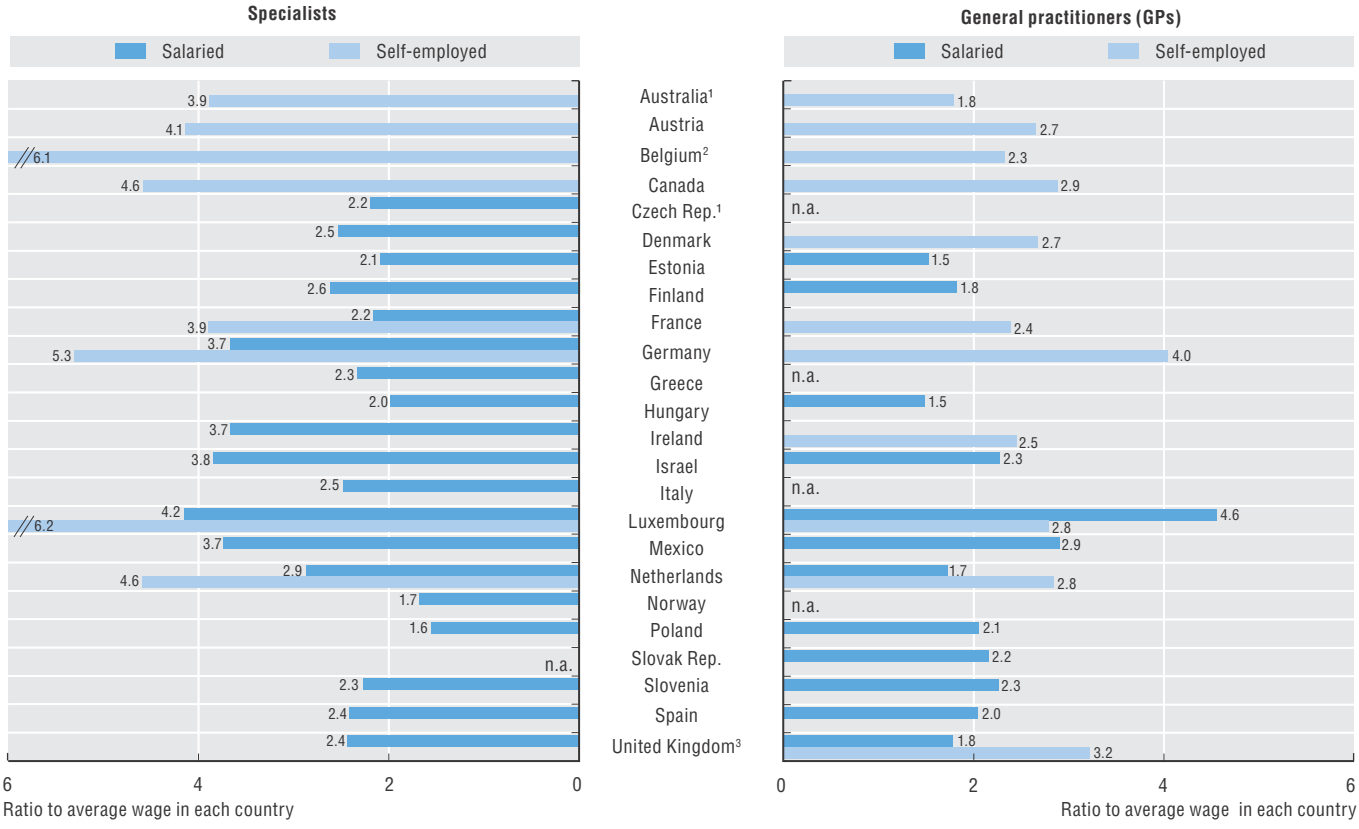
In Belgium, the data for self-employed doctors include practice expenses, resulting in an over-estimation.

The income of doctors is compared to the average wage of full-time employees in all sectors in the country. The source for the average wage of workers in the economy is the OECD Labour Force Statistics Database.

Reference

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), Chapter on "Trends in health labour markets following the economic crisis and current policy priorities to address health workforce issues", OECD Publishing, Paris.

5.11. Remuneration of doctors, ratio to average wage, 2013 (or nearest year)

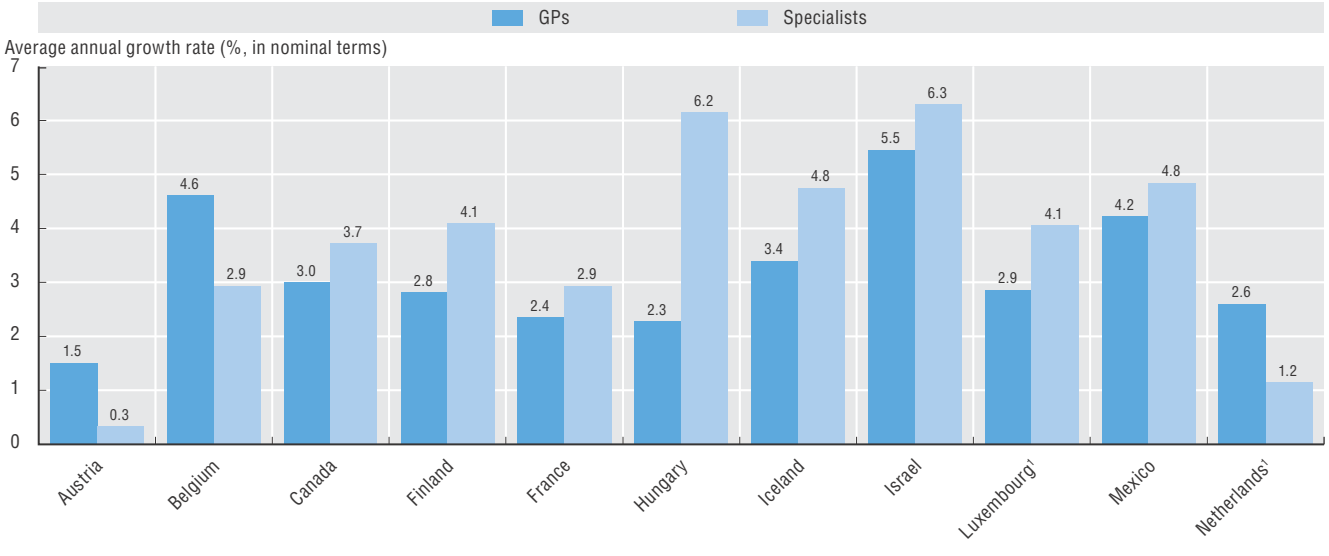


1. Physicians in training included (resulting in an underestimation).
2. Practice expenses included (resulting in an over-estimation).
3. Specialists in training included (resulting in an underestimation).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280919

5.12. Growth in the remuneration of GPs and specialists, 2005-2013 (or nearest year)



1. The growth rate for the Netherlands and for Luxembourg is for self-employed GPs and specialists.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280919

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Nurses

Nurses greatly outnumber 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.

There are concerns in many countries about current and possible future shortages of nurses, given that the demand for nurses is expected to rise in a context of population ageing and the retirement of the current "baby-boom" generation of nurses. These concerns have prompted actions in many countries to increase the training of new nurses (see the indicator on nursing graduates), combined with efforts to increase the retention rate of nurses in the profession. The latter has increased in recent years in many countries either because of the impact of the economic crisis that have prompted more nurses to stay or come back in the profession, or following deliberate efforts to improve their working conditions (OECD, forthcoming).

On average across OECD countries, there were around nine nurses per 1 000 population in 2013, up from less than eight nurses in 2000, so the number of nurses has gone up both in absolute terms and on a per capita basis (Figure 5.13). In 2013, the number of nurses per capita was highest in Switzerland, Norway, Denmark, Iceland and Finland, with more than 14 nurses per 1 000 population. The number of nurses per capita in OECD countries was lowest in Turkey (with less than 2 nurses per 1 000 population), and Mexico and Greece (with between 2 and 4 nurses per 1 000 population). With regards to partner countries, the number of nurses per capita was generally low compared with the OECD average. In 2013, Colombia, Indonesia, South Africa, India and Brazil had fewer than 1.5 nurse per 1 000 population, although numbers have been growing quite rapidly in Brazil in recent years.

The number of nurses per capita increased in almost all OECD countries since 2000. This was the case in countries that already had a high density of nurses in 2000 such as Switzerland, Norway and Denmark, but also in Korea, Portugal and France which used to have a relatively low density of nurses but have converged towards the OECD average (in the case of Korea and Portugal) or have now moved beyond the OECD average (in the case of France). The number of nurses per capita declined between 2000 and 2013 in Israel, as the size of the population grew more rapidly than the number of nurses. It also declined in the Slovak Republic, in both absolute numbers and on a per capita basis.

In 2013, there were about three nurses per doctor on average across OECD countries, with about half of the countries reporting between two to four nurses per doctor (Figure 5.14). The nurse-to-doctor ratio was highest in Finland, Japan, Ireland and Denmark (with at least 4.5 nurses per doctor). It was lowest in Greece (with only about half a nurse per doctor) and in Turkey and Mexico (with only about one nurse per doctor).

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. Existing evaluations find a high patient satisfaction rate, while the impact on cost is either cost-reducing or cost-neutral. The implementation of new advanced practice 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 providing services directly to patients ("practising") and in some cases also 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, should normally be excluded. However, about half of OECD countries include midwives because they are considered as specialist nurses.

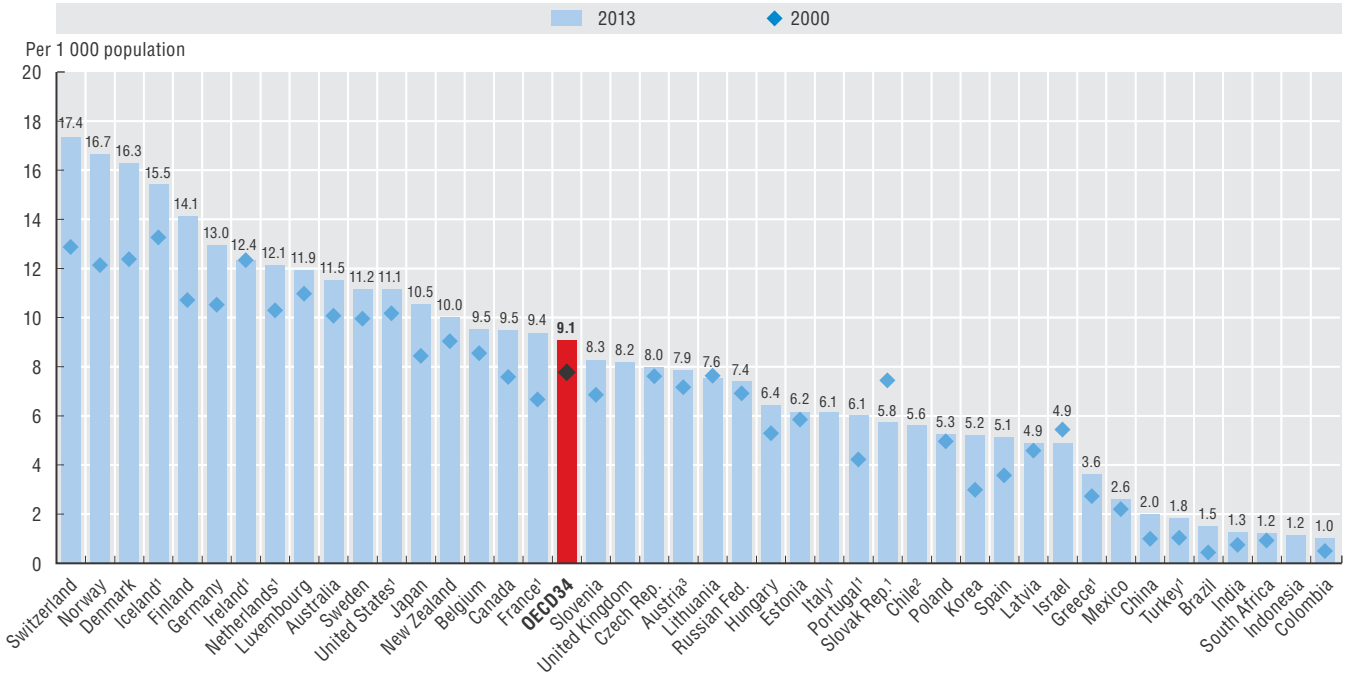
Austria reports only nurses working in hospital, resulting in an under-estimation.

References

Delamaire, M.-L. and G. Lafortune (2010), "Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries", *OECD Health Working Paper*, No. 54, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5kmbrcfms5g7-en*.

OECD (forthcoming), Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places (preliminary title), OECD Publishing, Paris.

5.13. Practising nurses per 1 000 population, 2000 and 2013 (or nearest year)

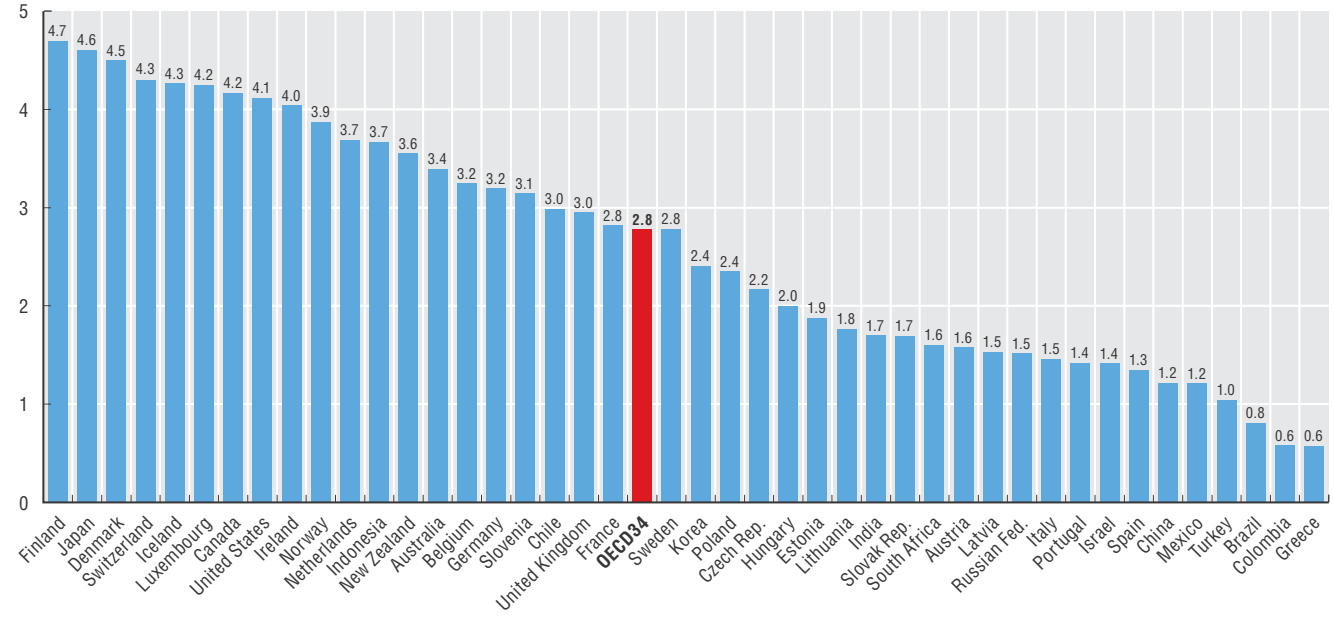


1. Data include not only nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc.
2. Data in Chile refer to all nurses who are licensed to practice (less than one-third are professional nurses with a university degree).
3. Austria reports only nurses employed in hospital.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280929

5.14. Ratio of nurses to physicians, 2013 (or nearest year)



Note: 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. The ratio for Portugal is understimated because the number of doctors includes all licensed to practise.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933280929

Nursing graduates

Many OECD countries have taken steps over the past decade or so to increase the number of students admitted in nursing schools in response to concerns about current or possible future shortages of nurses (OECD, forthcoming). Nonetheless, there are wide variations across countries in training efforts of new nurses, which may be explained by differences in the current number and age structure of the nursing workforce (and hence the replacement needs), in the capacity of nursing schools to take on more students, as well as the future employment prospects of nurses.

In 2013, there were on average nearly 50 new nurse graduates per 100 000 population across OECD countries, up from about 40 in 2003. Korea and Denmark had the highest number of new nurse graduates relative to their population, with these two countries graduating more than 90 new nurses per 100 000 population in 2013. Mexico, Luxembourg and the Czech Republic had the lowest number, with less than 15 nurse graduates per 100 000 population (Figure 5.15).

Over the past decade, the number of nursing graduates has increased in all OECD countries, but at different rates (Figure 5.16). In the United States, following a marked decrease in student intakes during the 1990s, the number of students admitted to nursing schools started to increase strongly in the early 2000s, in response to concerns about a potential significant shortage of nurses in the coming years. Between 2003 and 2013, the number of nursing graduates increased by 70% (from 119 000 to over 200 000 per year since 2010). Given this strong rise in admission and graduation numbers, the most recent projections from the US Department of Health and Human Services estimate that there may be an over-supply of registered nurses and licensed practical nurses in the United States by 2025, if student admissions and nurse retention rates remain at their current level (Health and Human Services, 2014).

In France, the number of graduates from nursing schools also increased strongly over the past decade, by 50% overall between 2003 and 2013. The *numerus clausus* set by the French Ministry of Health to control entry in nursing education programmes increased substantially since 1999, with the number of places growing by nearly 70% (rising from around 18 400 places in 1999 to over 31 000 in 2013). Most of the growth occurred in the academic year of 2000/2001 when the annual quota was increased by 43%, driven by a projected reduction in the supply of nurses resulting from the reduction of working time to 35 hours per week, as well as a more general concern about the anticipated retirement of a large number of nurses.

In Germany, there has been a big increase in the number of nurse graduates in recent years, related at least partly to a greater offer of registered nurse training programmes in several universities, in addition to the programmes traditionally offered in vocational nursing schools (Cassier-Woidasky, 2013).

The increase in the number of nursing graduates has been much more modest in Japan and Norway. In Japan, the number of nursing graduates rose by only 13% between 2003 and 2013, but this number has gone up further in 2014. In Norway, this slow increase might be explained by a significant proportion of Norwegian students who choose to go abroad to pursue nursing studies, and then come back to their home country to work (see the indicator on international migration of nurses).

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 data for Denmark and the United Kingdom are based on the number of new nurses receiving an authorisation to practice.

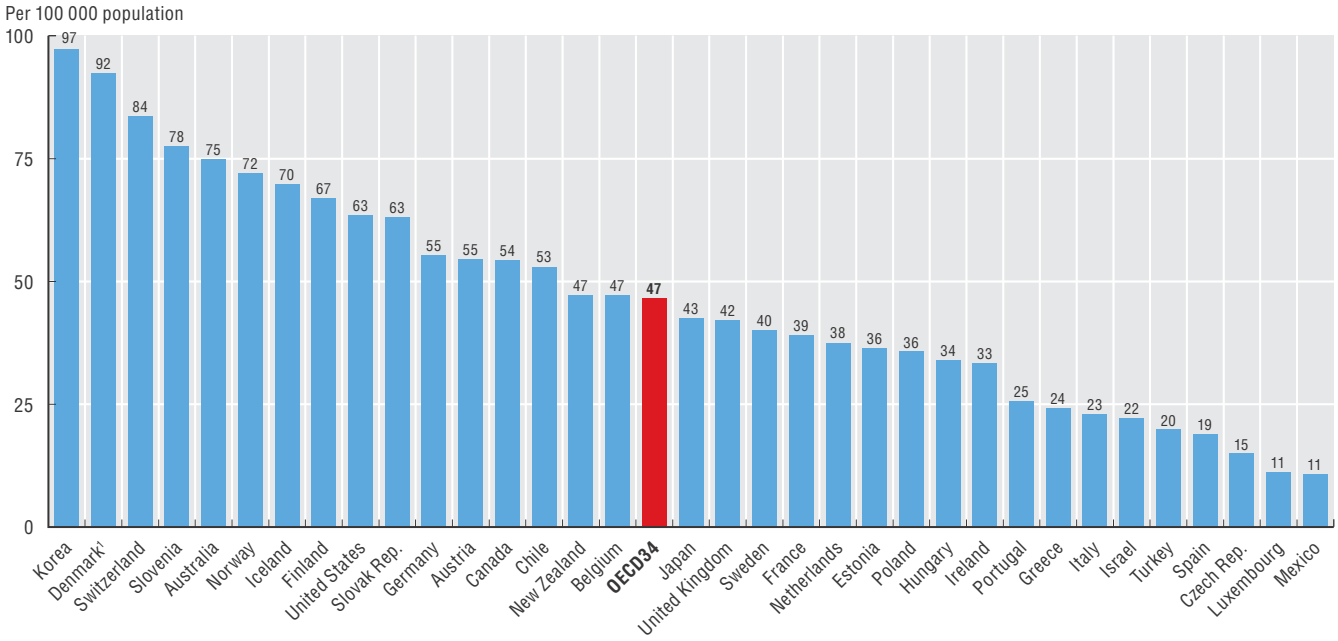
References

Cassier-Woidasky, A.-K. (2013), *Nursing Education in Germany – Challenges and Obstacles in Professionalisation*, DHBW, Stuttgart.

Health and Human Services (2014), "The Future of the Nursing Workforce: National- and State-level Projections, 2012-2025", US Department of Health and Human Resources, Rockville, Maryland, United States.

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), Chapter on "Changes in education and training capacities for doctors and nurses: What's happening with numerus clausus policies?", OECD Publishing, Paris.

5.15. Nursing graduates, 2013 (or nearest year)



1. In Denmark, the number refers to new nurses receiving an authorisation to practice, which may result in an over-estimation if these include foreign-trained nurses.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280939

5.16. Evolution in the number of nursing graduates, selected OECD countries, 2003 to 2013 (or nearest year)

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280939

Information on data for Israel: *http://oe.cd/israel-disclaimer*

International migration of nurses

In nearly all OECD countries, the proportion of foreign-trained nurses is much lower than that of foreign-trained doctors. However, given that the overall number of nurses is usually much greater than the number of doctors, the absolute number of foreign-trained nurses tends to be greater than that of foreign-trained doctors (OECD, forthcoming).

OECD countries vary widely in the number and share of foreign-trained nurses working in their health system (Figure 5.17). While there are almost no foreign-trained nurses working in countries such as Estonia, Turkey, Slovenia and the Netherlands, these make up nearly 25% of the nursing workforce in New Zealand, and between 10% and 20% of the nursing workforce in Switzerland, Australia, the United Kingdom and Israel. The share of foreign-trained nurses also exceeds 5% in Norway, Canada, the United States, Germany and Italy. In absolute numbers, the United States has by far the highest number of foreign-trained nurses (with almost 250 000 nurses trained abroad in 2013), followed by the United Kingdom (86 000 foreign-trained nurses in 2014) and Germany (70 000 foreign-trained nurses in 2010, latest year available).

The number and share of foreign-trained nurses has increased over the past ten years in several OECD countries, including New Zealand, Australia, Canada and Italy (Figure 5.18). In Italy, the increase in the immigration of foreign-trained nurses since 2000 was primarily driven by the arrival of a large number of nurses trained in Romania, who are now accounting for nearly half of all foreign-trained nurses (Figure 5.19). The movement of Romanian nurses to Italy preceded Romania's entry in the European Union in 2007, but has continued since then.

In the United Kingdom, in 2014, nearly half of all foreign-trained nurses came from Asian countries, mainly from the Philippines (26%) and India (19%). But a growing number of foreign-trained nurses also come from other EU countries, such as Spain, Portugal, Romania and Poland. In 2014, more than 5 600 nurses trained in Spain were working in the United Kingdom, and there were also more than 4 000 nurses trained in Portugal and Romania, and over 2 500 nurses trained in Poland.

In other EU countries such as France and Belgium, the percentage of nurses trained abroad remains low compared with the United Kingdom, but their numbers have increased rapidly. The number of foreign-trained nurses more than doubled in France between 2000 and 2013. About half of these foreign-trained nurses received their diploma from Belgium (in many cases, these were French citizens who went to study to Belgium before coming back), but there has also been a strong growth in the number of nurses trained in Portugal (with the number rising to over 1 100 in 2013, up from less than 100 in 2008) and in Spain (rising to over 1 600 in 2013, up from 1 100 in 2008). In Belgium, there has been a strong rise in the number of nurses trained in Romania (exceeding 1 000 in 2014, up from 150 in 2008), Portugal (with the number reaching 500 in 2014, up from 10 only in 2008) and to a lesser extent Spain (with the number reaching 300 in 2014, up from about 50 in 2008).

In 2014, more than 6 500 nurses trained in Portugal and more than 9 200 nurses trained in Spain were working in other EU countries, with a majority of them working in the United Kingdom.

Definition and comparability

The data relate to foreign-trained nurses working in OECD countries measured in terms of total stocks. The OECD health database also includes data on the annual flows for most of the countries shown here, as well as by country of origin. The data sources in most countries are professional registries or other administrative sources.

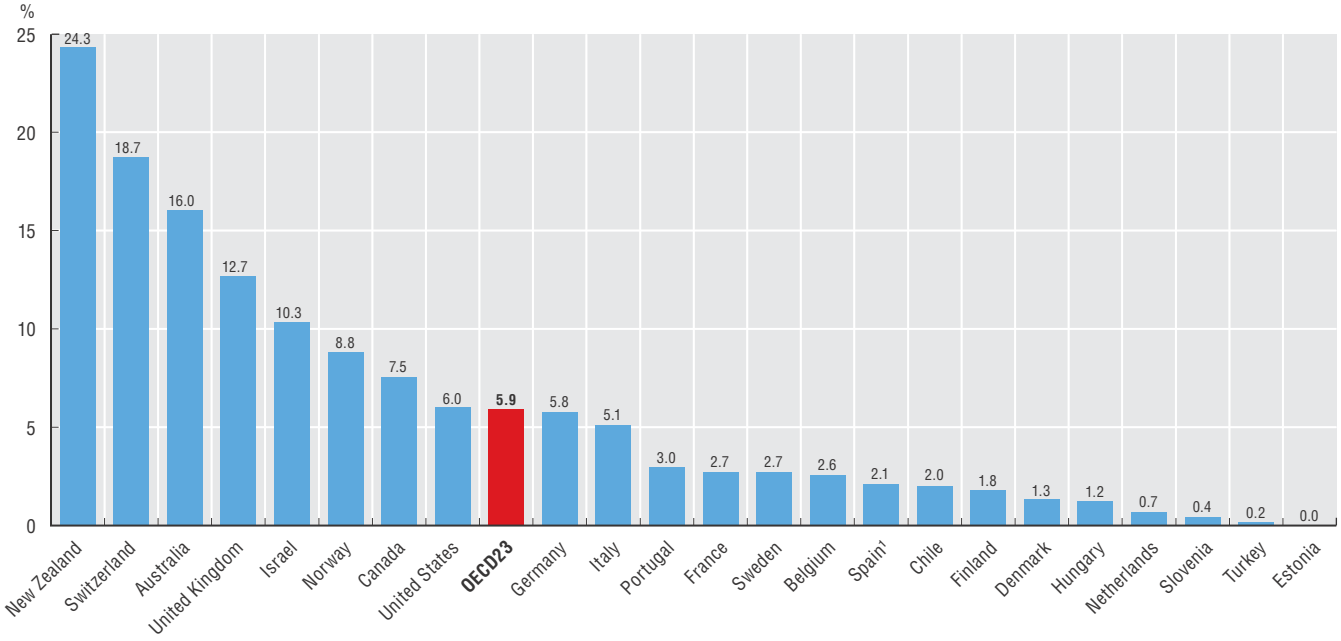
The main comparability limitation relates to differences in the activity status of nurses. Some registries are regularly updated, making it possible to distinguish nurses who are still actively working in health systems, while other sources include all nurses licensed to practice, regardless of whether they are still active or not. The latter will tend to over-estimate the number of foreign-trained nurses, although it will also over-estimate the total number of nurses (including the domestically-trained), so the impact on the share is not clear.

The data for some regions in Spain is based on nationality or country of birth, not the place of training.

References

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), Chapter on "Changing patterns in the international migration of doctors and nurses", OECD Publishing, Paris.

5.17. Share of foreign-trained nurses in OECD countries, 2013 (or nearest year)

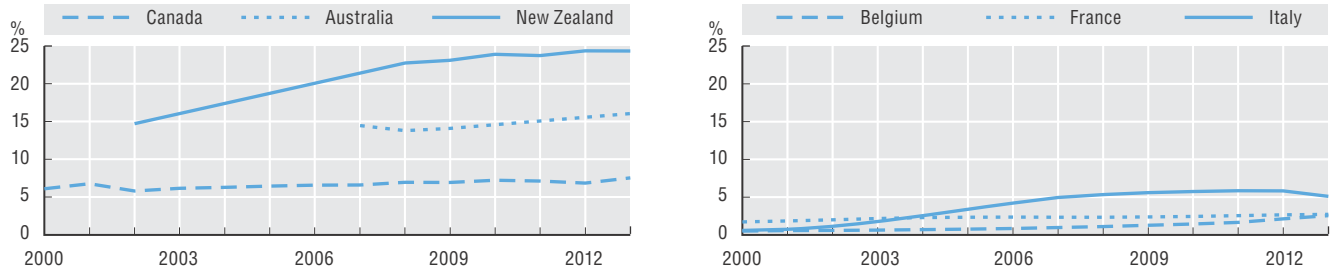


1. Data for some regions in Spain relate to foreign nationality or country of birth, not the place of training.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280940

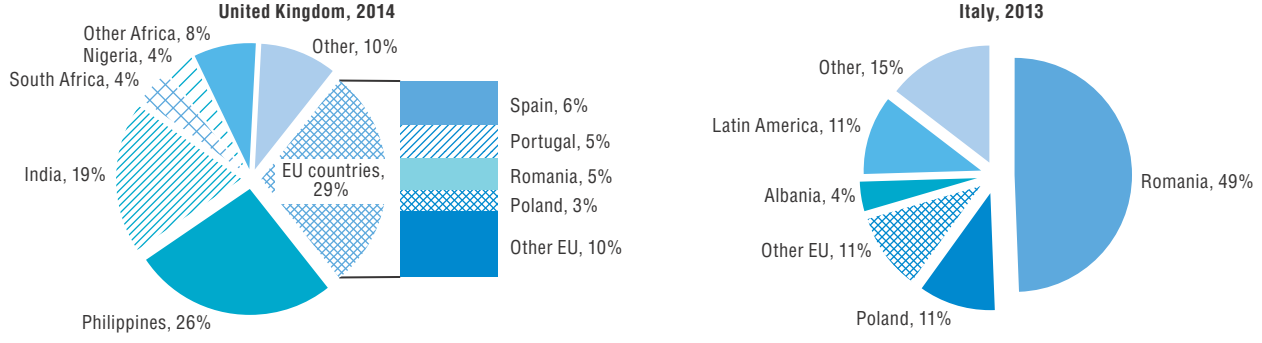
5.18. Evolution in the share of foreign-trained nurses, selected OECD countries, 2000 to 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280940

5.19. Main countries of training of foreign-trained nurses, United Kingdom and Italy



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280940

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Remuneration of nurses

The remuneration level of nurses is one of the factors affecting their 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.

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 2013 (Figure 5.20). In Israel and Luxembourg, the income of nurses was respectively 60% and 40% greater than the average wage. In Spain and the United States, it was about 30% greater than the average wage, while in Greece, Australia and Germany it was 20% higher. In other countries, the salary of hospital nurses is roughly equal to the average wage in the economy. In the Slovak Republic, Hungary and France, it is about 10% lower.

When converted to a common currency (and adjusted for purchasing power parity), the remuneration of nurses was at least four times higher in Luxembourg than in Hungary, the Slovak Republic and Estonia (Figure 5.21). Nurses in the United States also had relatively high earnings compared with their counterparts in other countries, which explains, at least partly, the ability of the United States to attract many nurses from other countries.

In many countries, the remuneration of nurses has been affected by the economic crisis in 2008, but to varying degrees (Figure 5.22). Outside Europe, the growth in the remuneration of nurses in countries such as the United States, Australia and New Zealand slowed down temporarily following the economic crisis, while the crisis did not appear to have any effect on the growth rate in nurse remuneration level in Mexico. In Europe, following the economic crisis, the remuneration of nurses was cut down in some countries, such as in Hungary and Italy, and has been frozen in Italy over the past few years. In Greece, the remuneration of nurses has been reduced on average by 20% between 2009 and 2013.

Some Central and Eastern European countries have introduced a series of measures in recent years to increase the retention of nurses and other health workers, including pay raise despite tight budget constraints. In Hungary, a staged increase of 20% in the salaries of nurses and doctors was introduced in 2012, phased over a three-year period. In the Czech Republic, nurses also benefitted from a pay increase following protests of hospital workers in 2011 (although their pay raise was lower than that for doctors), accompanied by some improvement in other aspects of their working conditions (OECD, forthcoming).

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 the data also cover nurses working in other settings. In some federal states, such as Australia, Canada and the United States, 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, Chile, Ireland and the United States, resulting in an overestimation compared to other countries where lower-level nurses ("associate professional") are also included. Data for New Zealand relate to nurses employed by publically funded district health boards, and includes registered nurses, health assistants, nurse assistants, and enrolled nurses. These latter three categories have a different and significantly lower salary structure than registered nurses.

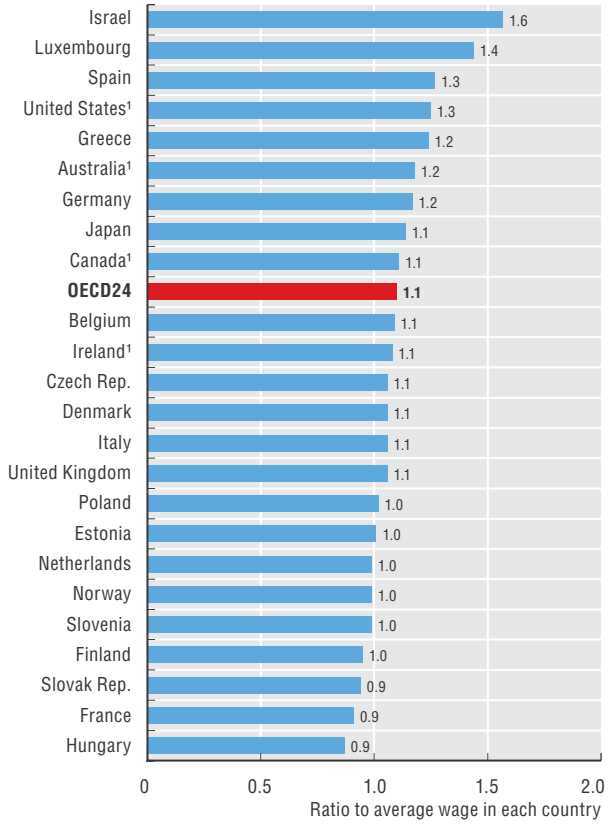
The data relate to nurses working full time, with the exception of Belgium where part-time nurses are also included (resulting in an under-estimation). The data for some countries do not include additional income such as overtime payments and bonuses (e.g., Italy and Slovenia). Informal payments, which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

The income of nurses is compared to the average wage of full-time employees in all sectors in the country. The source for the average wage of workers in the economy is the *OECD Labour Force Statistics Database*.

References

OECD (forthcoming), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places* (preliminary title), OECD Publishing, Paris.

5.20. Remuneration of hospital nurses, ratio to average wage, 2013 (or nearest year)

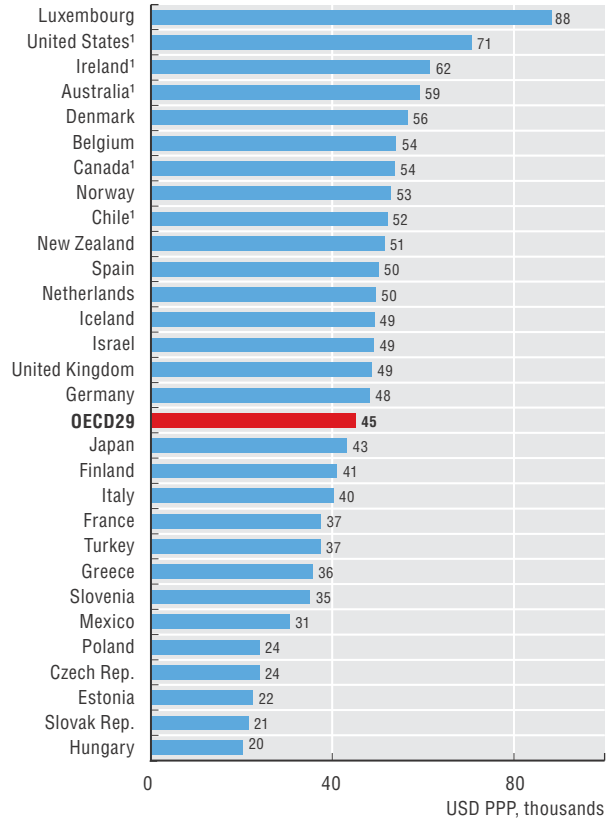


1. Data refer to registered ("professional") nurses in the United States, Australia, Canada and Ireland (resulting in an over-estimation).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280951

5.21. Remuneration of hospital nurses, USD PPP, 2013 (or nearest year)

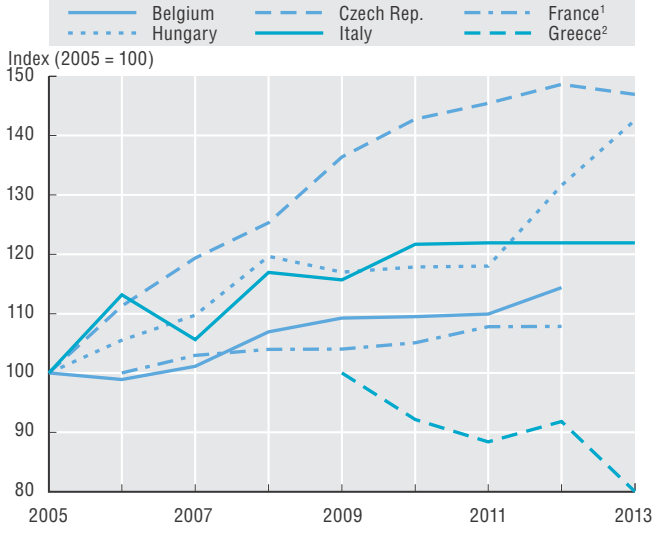


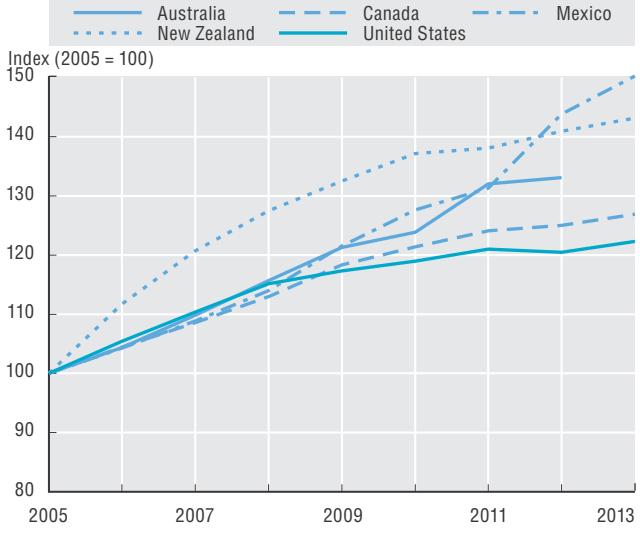
1. Data refer to registered ("professional") nurses in the United States, Ireland, Australia, Canada and Chile (resulting in an over-estimation).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280951

5.22. Evolution in the remuneration of hospital nurses, selected OECD countries, 2005-13 (or nearest year)





1. Index for France, 2006 = 100.
2. Index for Greece, 2009 = 100.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933280951

ANESTHETIC
SURGICAL

6. HEALTH CARE ACTIVITIES

Consultations with doctors

Medical technologies

Hospital beds

Hospital discharges

Average length of stay in hospitals

Cardiac procedures

Hip and knee replacement

Caesarean sections

Ambulatory surgery

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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 countries (e.g., Denmark, Italy, Netherlands, Norway, Portugal, Slovak Republic, Spain and United Kingdom), patients are required or given incentives to consult a general practitioner (GP) about any new episode of illness. The GP may then refer them to a specialist, if indicated. In other countries, patients may approach specialists directly.

In 2013, the number of doctor consultations per person ranged from over 12 in Korea and Japan, to less than three in Mexico, Finland and Sweden, as well as in South Africa and Brazil (Figure 6.1). The OECD average was about 6.5 consultations per person per year, with most countries reporting between five and eight consultations. Cultural factors appear to play a role in variations across countries, although certain health system characteristics may also be important. Some countries where doctors receive 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, Finland 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 below average, suggesting that other factors are also important.

In Sweden and Finland, the low number of doctor consultations may also be explained partly by the fact that 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 many OECD countries since 2000. This was particularly the case in Korea, partly explained by the rapid increase in the number of physicians during that period. In some other countries, the number of consultations with doctors per person fell. This was the case in Japan, the Czech Republic and the Slovak Republic, although the number remains well above average in these three countries.

Information on the number of doctor consultations per person can be used to estimate the annual numbers of consultations per doctor. This indicator 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. Keeping these reservations in mind, the estimated number of consultations per doctor is highest in Korea and Japan, followed by Turkey and Hungary (Figure 6.2). On the other hand, the estimated number of consultations per doctor was lowest in Sweden and Finland, where consultations with doctors in both primary care settings and hospitals tend to be concentrated more for patients with more severe and complex cases.

The number and type of doctor consultations can vary among different population groups in each country. An OECD study found that the probability of a visit to the GP tends to be equally distributed in most countries, but in nearly all countries, higher income people are more likely to see a specialist than those with low income, and also more frequently (Devaux and de Looper, 2012).

Definition and comparability

Consultations with doctors refer to the number of contacts with physicians, including both generalists and specialists. There are variations across countries in the coverage of these consultations, notably in outpatient departments of hospitals. The data come mainly from administrative sources, although in some countries (Ireland, Israel, Italy, Netherlands, New Zealand, Spain, Switzerland and 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.

In Hungary, the figures include consultations for diagnostic exams such as CT and MRI scans (resulting in an over-estimation). 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 (resulting in an under-estimation). In Germany, the data include only the number of cases of physicians' treatment according to reimbursement regulations under the Social Health Insurance Scheme (a case only counts the first contact over a three-month period, even if the patient consults a doctor more often, leading to an under-estimation). Telephone contacts are included in some countries (e.g. Ireland, Spain and United Kingdom). In Turkey, a majority of consultations with doctors occur in outpatient departments in hospitals.

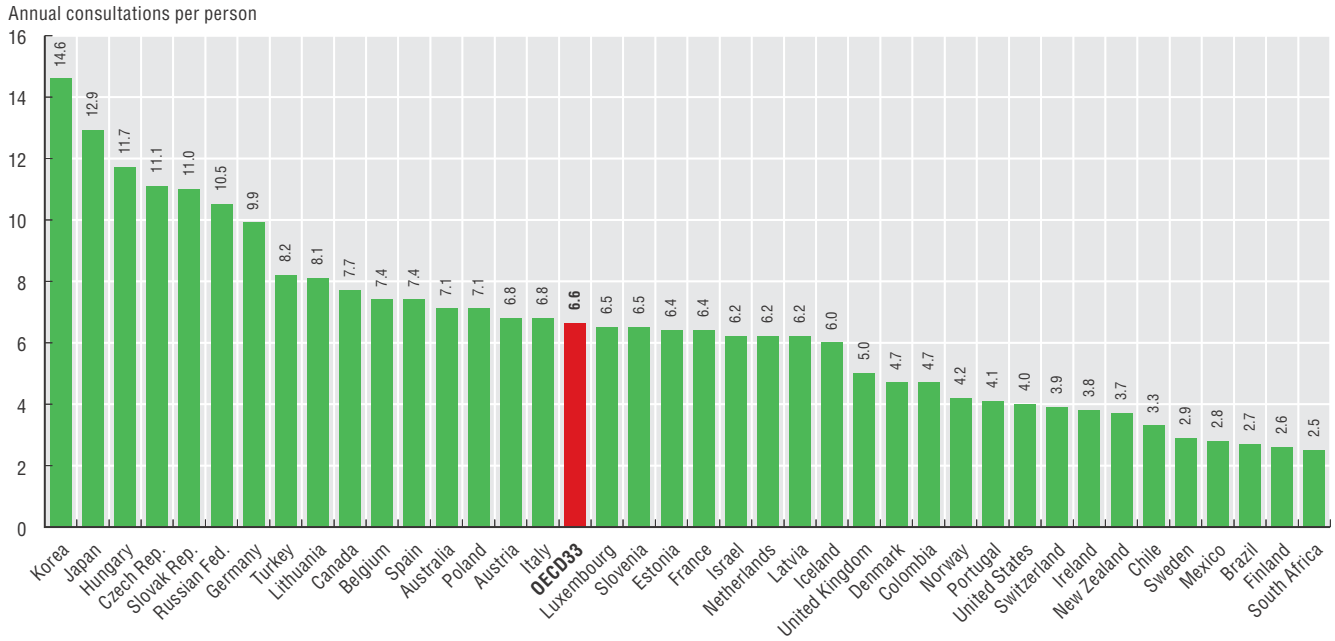
References

Delamaire, M.-L. and G. Lafortune (2010), "Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries", *OECD Health Working Paper*, No. 54, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5kmbrcfms5g7-en*.

Devaux, M. and M. de Looper (2012), "Income-related Inequalities in Health Service Utilisation in 19 OECD Countries", *OECD Health Working Papers*, No. 58, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5k95xd6stnxt-en*.

A corrigendum has been issued for this page. See http://www.oecd.org/about/publishing/Corrigendum-HealthataGlance2015.pdf

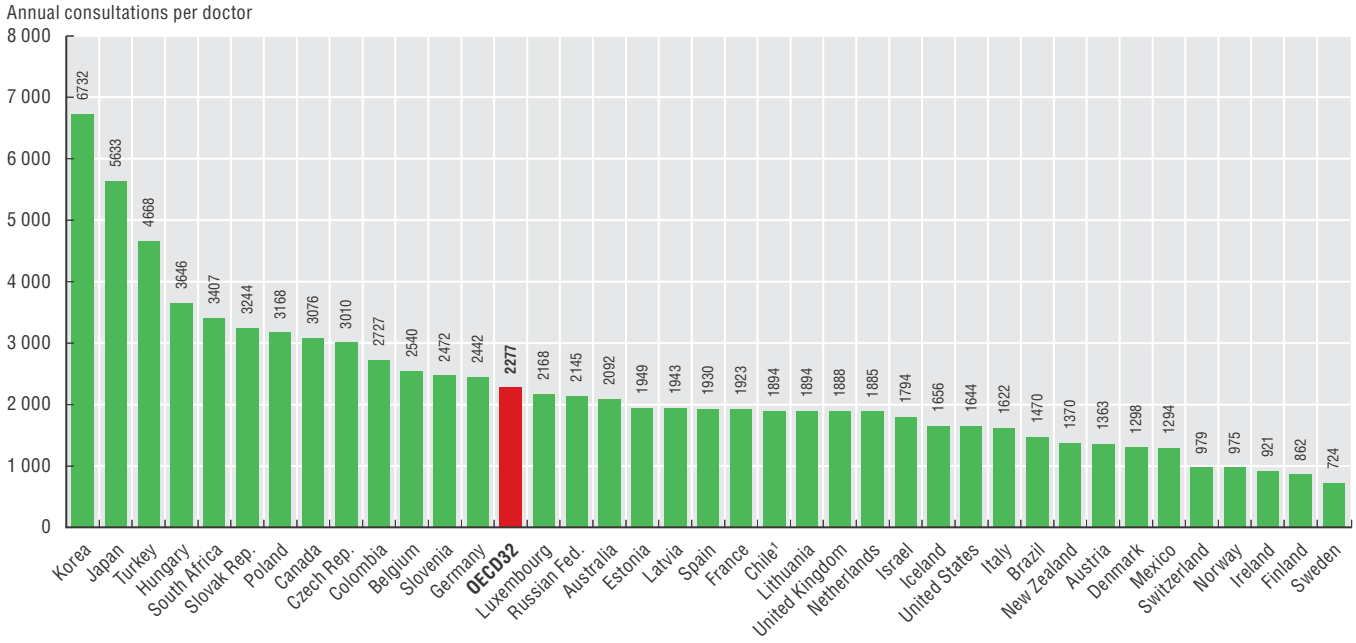
6.1. Number of doctor consultations per person, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280967

6.2. Estimated number of consultations per doctor, 2013 (or nearest year)



1. In Chile, data for the denominator include all doctors licensed to practice.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280967

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Medical technologies

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

The availability of CT scanners and MRI units has increased rapidly in most 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 6.3 and 6.4). Greece, Iceland, Italy, Korea and Switzerland also has significantly more MRI and CT scanners per capita than the OECD average. The number of MRI units and CT scanners per population is the lowest in Mexico, Hungary, Israel and the United Kingdom.

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

Data on the use of these diagnostic scanners are available for a smaller group of countries, excluding Japan. Based on this more limited country coverage, the number of MRI exams per capita is highest in Turkey and the United States, followed by France, Luxembourg and Belgium (Figure 6.5). In the United States, the (absolute) number of MRI exams more than doubled between 2000 and 2013. In Turkey, it has grown even faster, by two-and-a-half times between 2008 and 2013. In this country, there is growing evidence that MRI exams are being systematically prescribed for patients with various health problems, resulting in overuse of these tests. The number of CT exams per capita is highest in the United States, followed by Luxembourg, France and Greece (Figure 6.6). However, in Greece, the number of CT exams decreased by over 40% between 2008 and 2012, while the number of MRI exams also came down by about 30%.

There are large variations in the use of CT and MRI scanners not only across countries, but also within countries. For example, in Belgium, there was almost a two-fold variation in MRI and CT exams between provinces with the highest and lowest rates in 2010. In the United Kingdom (England), the utilisation of both types of diagnostic exams is generally much lower, but the variation across regions is greater, with almost a four-fold difference between the Primary Care Trusts that had the highest rates and lowest rates of MRI and CT exams in 2010/11. In Canada, there has been a strong rise in the use of both MRI and CT exams in all parts of the country over the past decade, but there continues to be wide variations across provinces (OECD, 2014).

Clinical guidelines have been developed in several OECD countries to promote a more rational use of MRI and CT exams. In the United Kingdom, the National Institute for Health and Clinical Excellence (NICE) has issued a number of guidelines on the appropriate use of MRI and CT exams (NICE, 2012). In the United States, a "Choosing Wisely" campaign was launched in 2012, led by professional medical associations, to develop clear guidelines for doctors and patients to reduce the use of unnecessary diagnostic tests and procedures. The guidelines include, for instance, avoiding imaging studies such as MRI, CT or X-rays for patients with acute low back pain without specific indications (Choosing Wisely, 2015). A similar "Choosing Wisely" campaign was launched in Canada in 2014, and work has also started in several other OECD countries to produce similar clear guidelines and recommendations to promote a more proper use of diagnostic tests and other procedures. It is still too early to tell to what extent these campaigns will succeed in reducing the overuse of MRI and CT exams.

Definition and comparability

The data in most countries cover MRI units and CT scanners installed both in hospitals and the ambulatory sector, but the coverage is more limited in some countries. MRI units and CT scanners outside hospitals are not included in Belgium, Germany, Portugal and Switzerland (for MRI units). For Australia and Hungary, the number of MRI units and CT scanners includes only those eligible for public reimbursement. Similarly, MRI and CT exams performed outside hospitals are not included in Austria, Germany, Ireland, Portugal, Switzerland and the United Kingdom. Furthermore, MRI and CT exams for Ireland only cover public hospitals. In Australia, the data only include exams for private patients (in or out of hospitals), while in Korea and the Netherlands, they only include publicly financed exams.

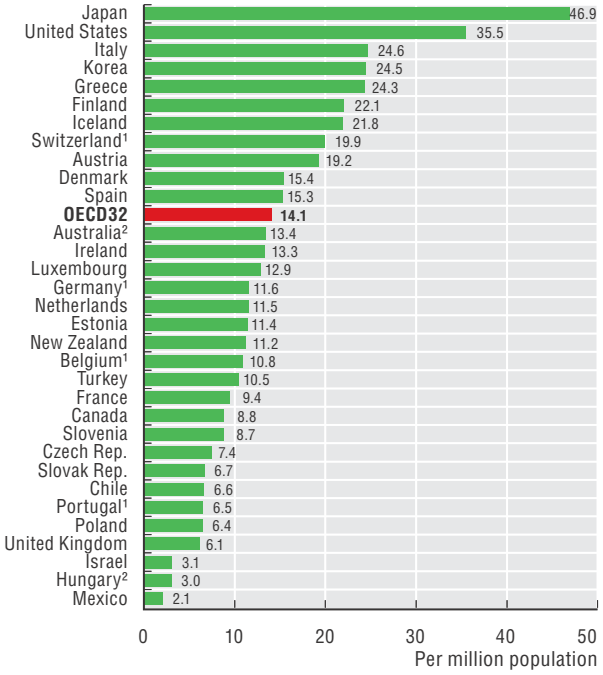
References

Choosing Wisely (2015), *Recommendations from the American Society of Anesthesiologists*, available at: *www.choosingwisely.org/clinician-lists/american-society-anesthesiologists-imaging-studies-for-acute-low-back-pain/* .

NICE – *National Institute for Health and Care Excellence* (2012), *Published Diagnostics Guidance*, available at *http://guidance.nice.org.uk/DT/Published*.

OECD (2014), *Geographic Variations in Health Care: What Do We Know and What Can Be Done to Improve Health System Performance?*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264216594-en*.

6.3. MRI units, 2013 (or nearest year)

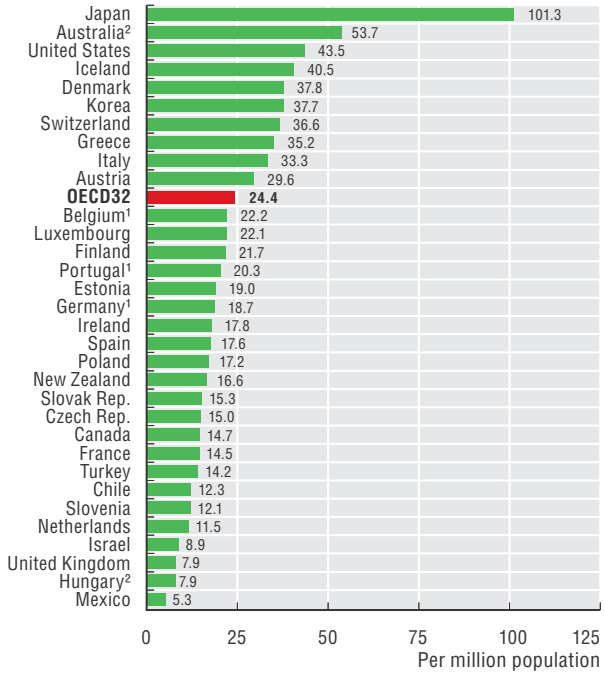


1. Equipment outside hospital not included.
2. Only equipment eligible for public reimbursement.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280972

6.4. CT scanners, 2013 (or nearest year)

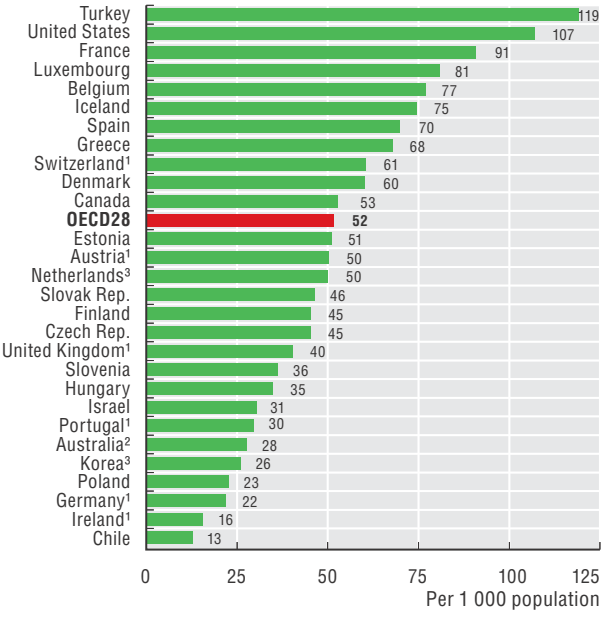


1. Equipment outside hospital not included.
2. Only equipment eligible for public reimbursement.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280972

6.5. MRI exams, 2013 (or nearest year)



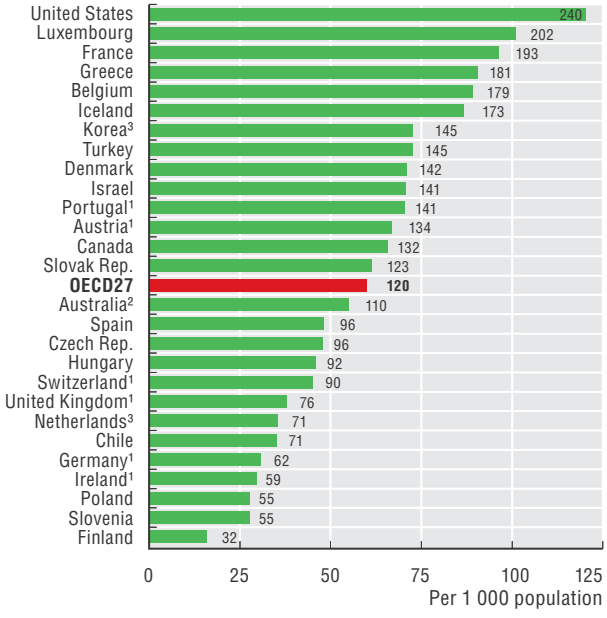
1. Exams outside hospital not included (in Ireland, exams in private hospital also not included).
2. Exams on public patients not included.
3. Exams privately-funded not included.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280972

Information on data for Israel: *http://oe.cd/israel-disclaimer*

6.6. CT exams, 2013 (or nearest year)



1. Exams outside hospital not included (in Ireland, exams in private hospital also not included).
2. Exams on public patients not included.
3. Exams privately-funded not included.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280972

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 number of hospital beds overall and for different types of care (curative care, psychiatric care, long-term care and other functions). 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 11 beds or more per 1 000 population in 2013 (Figure 6.7). In Japan and Korea hospitals have so-called "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, and in Germany and Austria. On the other hand, some of the large partner countries in Asia (India and Indonesia) have very few hospital beds compared with the OECD average. This is also the case for countries in Latin America (Colombia, Mexico, Chile and Brazil).

The number of hospital beds per capita has decreased over the past decade in most OECD countries, falling on average from 5.5 per 1 000 population in 2000 to 4.8 in 2013. 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. In many European countries, the financial and economic crisis which started in 2008 also provided a further stimulus to reduce hospital capacity as part of policies to reduce public spending on health. Only in Korea and Turkey has the number of hospital beds per capita grown since 2000.

More than two-thirds of hospital beds (69%) are allocated for curative care on average across OECD countries (Figure 6.8). The rest of the beds are allocated for psychiatric care (14%), long-term care (13%) and other types of care (4%). However, in some countries, the share of beds allocated for psychiatric care and long-term care is much greater than the average. In Korea, 35% of hospital beds are allocated for long-term care. In Finland, this share is also relatively high (27%) as local governments (municipalities) use beds in health care centres (which are defined as hospitals) for at least some of the needed long-term care in institutions. In Belgium and Norway, about 30% of hospital beds are devoted to psychiatric care.

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 care beds stood at 77% on average across OECD countries in 2013, slightly above the 2000 level (Figure 6.9). Israel and Ireland had the highest rate of hospital bed occupancy at approximately 94%, followed by Norway and Canada at around 90%. In the United Kingdom, Belgium and France, the bed occupancy rate remained relatively stable during that period.

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 hospitals, and other specialty hospitals. Beds in residential long-term care facilities are excluded (OECD, 2015).

Curative care beds are accommodating patients where the principal intent is to do one or more of the following: manage labour (obstetric), treat non-mental illness or injury, and perform surgery, diagnostic or therapeutic procedures.

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

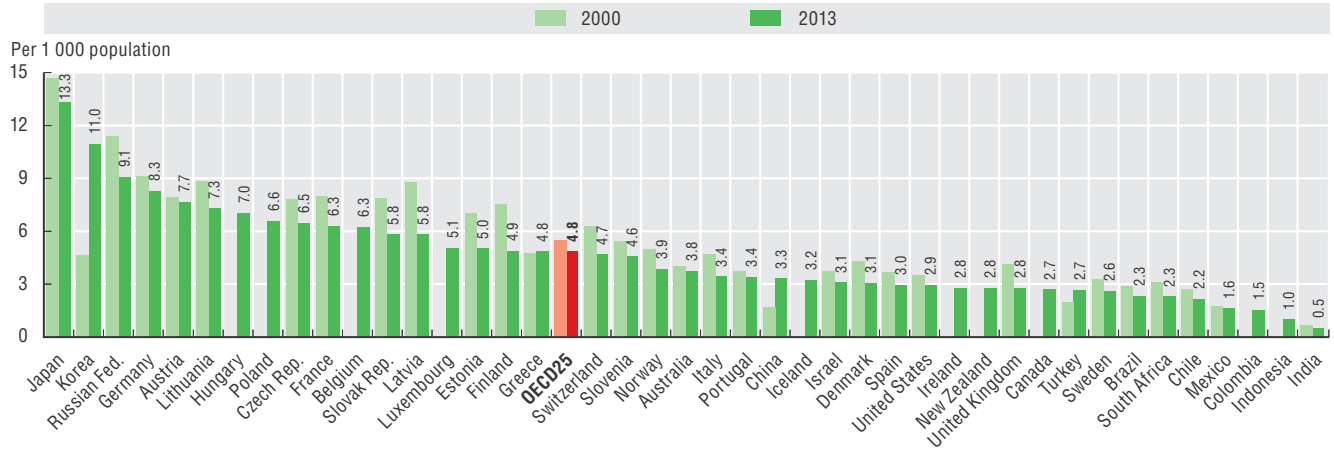
Long-term care beds are accommodating patients requiring long-term care due to chronic impairments and a reduced degree of independence in activities of daily living. They include beds in long-term care departments of general hospitals, beds for long-term care in specialty hospitals, and beds for palliative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

References

OECD (2015), *OECD Health Statistics 2015*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/health-data-en*.

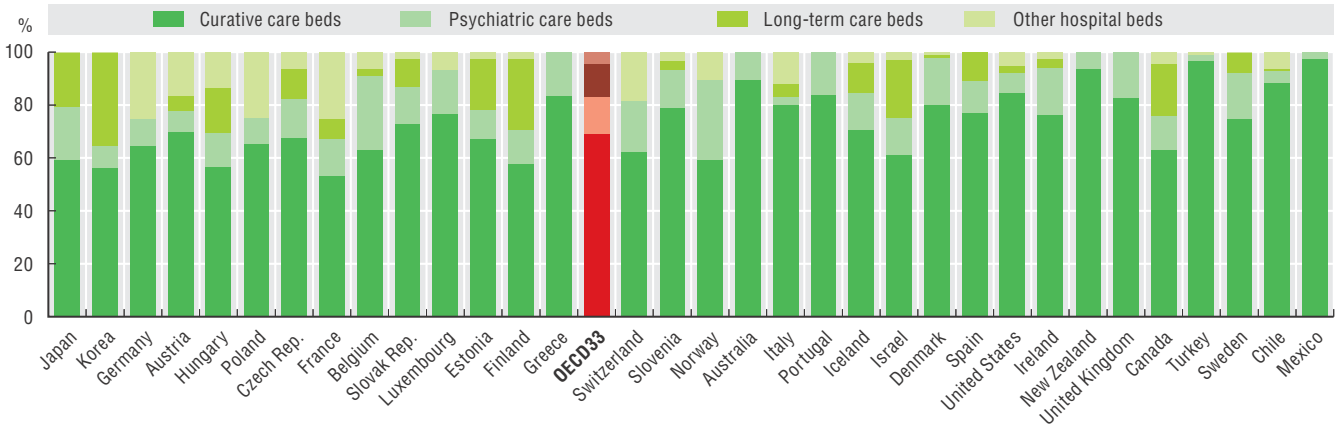
6.7. Hospital beds per 1 000 population, 2000 and 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280981

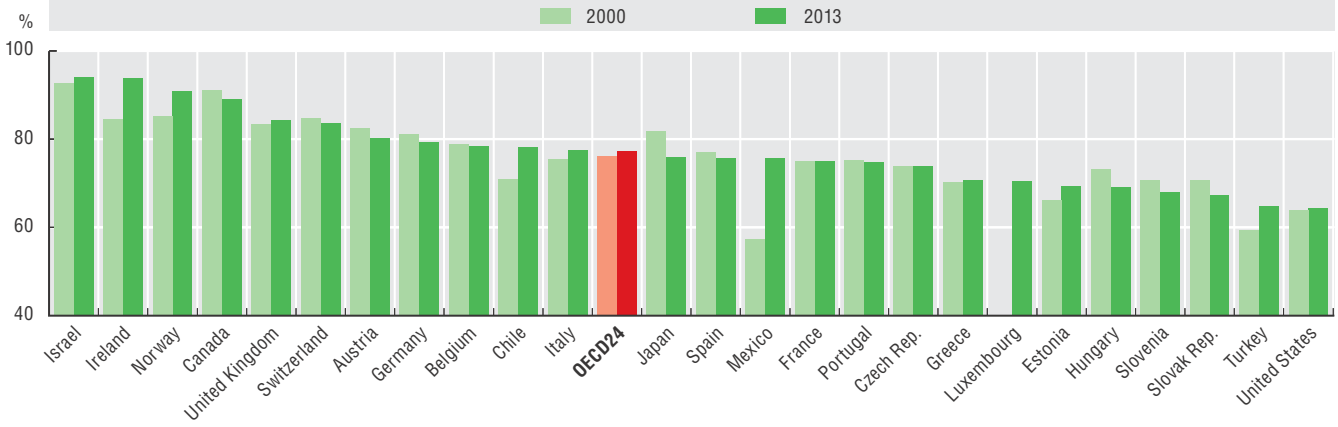
6.8. Hospital beds by function of health care, 2013 (or nearest year)



Note: Countries ranked from highest to lowest total number of hospital beds per capita.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933280981

6.9. Occupancy rate of curative (acute) care beds, 2000 and 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933280981

Hospital discharges

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

In 2013, hospital discharge rates were highest in Austria and Germany, followed by Lithuania, the Russian Federation, the Czech Republic and Hungary (Figure 6.10). They were the lowest in Colombia, Mexico, South Africa, Brazil and Canada. 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 two-times greater than in Canada and Spain, and discharge rates are also more than two-times larger (see indicator on "Hospital beds").

Across OECD countries, the main conditions leading to hospitalisation in 2013 were circulatory diseases, pregnancy and childbirth, injuries and other external causes, diseases of the digestive system, cancers, and respiratory diseases.

Austria and Germany have the highest discharge rates for both circulatory diseases and cancers, followed by Hungary and Estonia for circulatory diseases (Figure 6.11), and Greece and Hungary for cancers (Figure 6.12). While the high rates of hospital discharges for circulatory diseases in Hungary and Estonia are associated with lots of people having heart and other circulatory diseases (see indicator on "Mortality from cardiovascular diseases" in Chapter 3), this is not the case for Germany and Austria. Similarly, cancer incidence is not higher in Austria, Germany or Greece than in most other OECD countries (see indicator on "Cancer incidence" in Chapter 3). In Austria, the high discharge rate is associated with a high rate of hospital readmissions for further investigation and treatment of cancer patients (European Commission, 2008).

Trends in hospital discharge rates vary widely across OECD countries. Since 2000, discharge rates have increased in some countries where discharge rates were low in 2000 and have increased rapidly since then (e.g. Korea and Turkey) as well as in other countries such as Germany where it was already above-average. In other countries (e.g. Belgium, Czech Republic and Japan), they have remained relatively stable, while in other countries (including Canada, Finland, France, Italy and Spain), discharge rates fell between 2000 and 2013.

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. 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. But the diffusion of new medical technologies may also involve a reduction in hospitalisation if it involves a shift from procedures requiring overnight stays in hospitals to same-day procedures. In the group of countries where discharge rates have decreased since 2000, there has been a strong rise in the number of day surgeries (see indicator on "Ambulatory surgery").

Hospital discharge rates vary not only across countries, but also within countries. In several OECD countries (e.g., Canada, Finland, Germany, Italy, Portugal, Spain and the United Kingdom), hospital medical admissions (excluding admissions for surgical interventions) vary by more than two-times across different regions in the country (OECD, 2014).

Definition and comparability

Discharge is defined as the release of a patient who has stayed at least one night in hospital. It includes deaths in hospital following inpatient care. Same-day discharges are usually excluded, with the exceptions of Chile, 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, Luxembourg, Mexico, Spain). These comprise some 3-10% of all discharges. The data for Canada also exclude unhealthy babies born in hospitals.

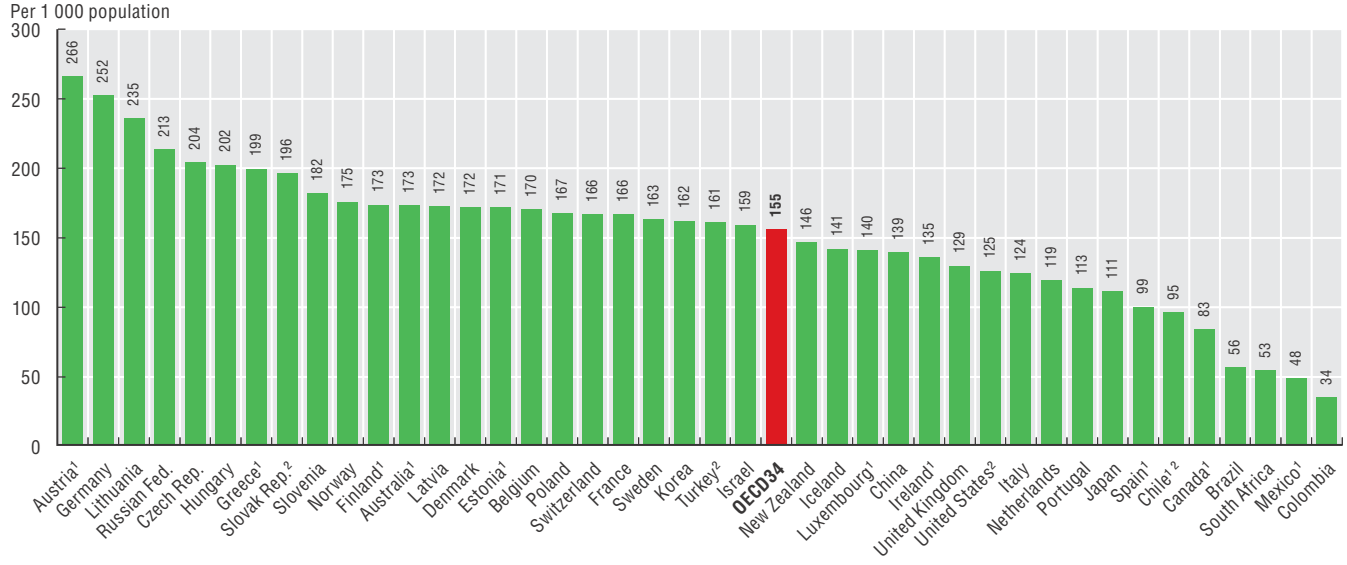
Data for some countries do not cover all hospitals. For instance, data for Denmark, Ireland, Mexico, New Zealand and the United Kingdom are restricted to public or publicly-funded hospitals only. Data for Portugal relate only to public hospitals on the mainland (excluding the Islands of Azores and Madeira).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

References

European Commission (2008), *Hospital Data Project Phase 2, Final Report*, European Commission, Luxembourg.

OECD (2014), *Geographic Variations in Health Care: What Do We Know and What Can Be Done to Improve Health System Performance?*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264216594-en*.

6.10. Hospital discharges, 2013 (or nearest year)

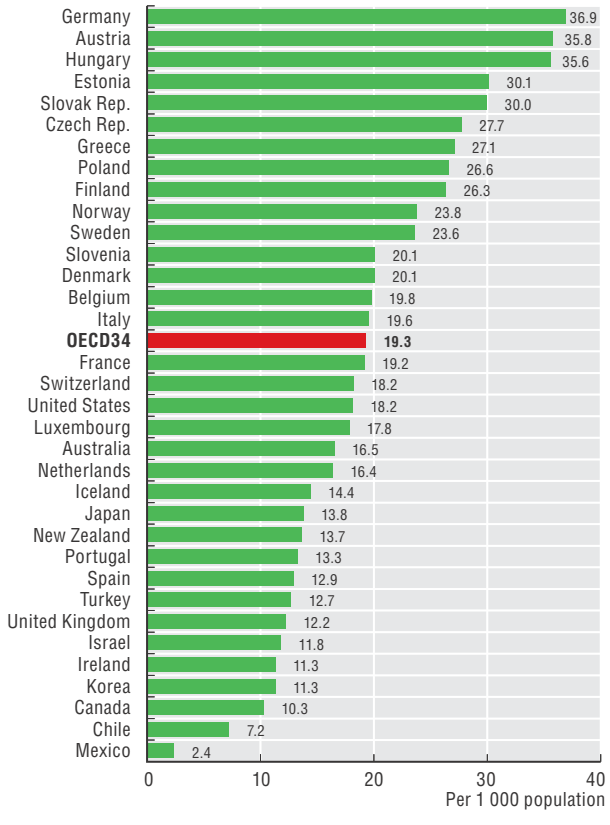


1. Excludes discharges of healthy babies born in hospital (between 3-10% of all discharges).
2. Includes same-day discharges.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280996

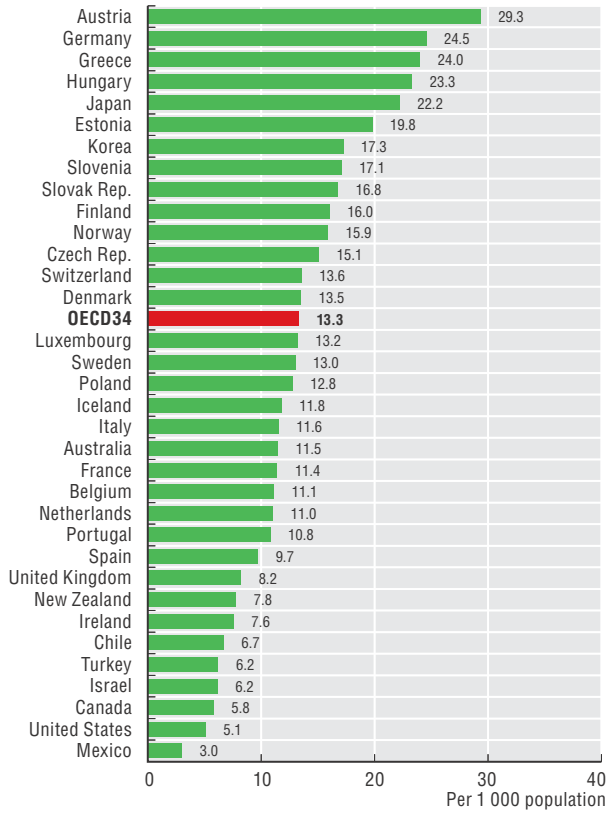
6.11. Hospital discharges for circulatory diseases, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280996

6.12. Hospital discharges for cancers, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933280996

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Average length of stay in hospitals

The average length of stay in hospitals (ALOS) is often regarded 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 2013, the average length of stay in hospitals for all causes across OECD countries was about eight days (Figure 6.13). Turkey and Mexico had the shortest stays, with about four days (half the OECD average), whereas Japan and Korea had the longest stays, with over 16 days (more than double the OECD average). Across OECD countries, the average length of stay has fallen from an average of almost 10 days in 2000 to 8 days in 2013. But there are a few exceptions to this general pattern, with the average length of stay increasing in Korea, but also in Hungary and Luxembourg, where it is now above the OECD average.

Focusing on average length of stay for specific diseases or conditions can remove some of the effect of different case mix and severity. Figure 6.14 shows that average length of stay following a normal delivery was slightly less than three days on average in 2013, down from more than three-and-a-half days in 2000. This ranged from less than two days in Mexico, Turkey, the United Kingdom, Iceland, Canada, New Zealand and the Netherlands, to five days or more in the Slovak Republic and Hungary.

The average length of stay following acute myocardial infarction was around seven days on average in 2013. It was shortest in some of the Nordic countries (Denmark, Norway and Sweden), Turkey and the Slovak Republic, at fewer than five days, and highest in Korea and Germany, at more than ten days (Figure 6.15).

Several factors can explain these cross-country variations. Differences in the clinical need of the patient may obviously play a role, but these variations also likely reflect differences in clinical practices and payments systems. The combination of an abundant supply of beds with the structure of hospital payments may provide hospitals with incentives to keep patients longer. A growing number of countries (France, Germany, Poland) have moved to prospective payment methods often based on diagnosis-related groups (DRGs) to set payments based on the estimated cost of hospital care for different patient groups in advance of service provision. These payment methods have the advantage of encouraging providers to reduce the cost of each episode of care. In Switzerland, the cantons which moved from per diem payments to diagnosis-related groups (DRG) based payments, have experienced a reduction in their hospital lengths of stay (OECD and WHO, 2011).

Most countries are seeking to reduce average length of stay whilst maintaining or improving the quality of care. A diverse set of policy options at clinical, service and system level are available to achieve these twin aims. Strategic reductions in hospital bed numbers alongside development of community care services can be expected to shorten average length of stay, such as seen in Denmark's quality-driven reforms of the hospital sector (OECD, 2013). Other options include promoting the uptake of less invasive surgical procedures, changes in hospital payment methods, the expansion of early discharge programmes which enable patients to return to their home to receive follow-up care, and support for hospitals to improve the co-ordination of care across diagnostic and treatment pathways.

Definition and comparability

Average length of stay 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. The data cover all inpatient cases (including not only curative/acute care cases) for most countries, with the exceptions of Canada, Japan and the Netherlands where the data still refer to curative/acute care only (resulting in an under-estimation).

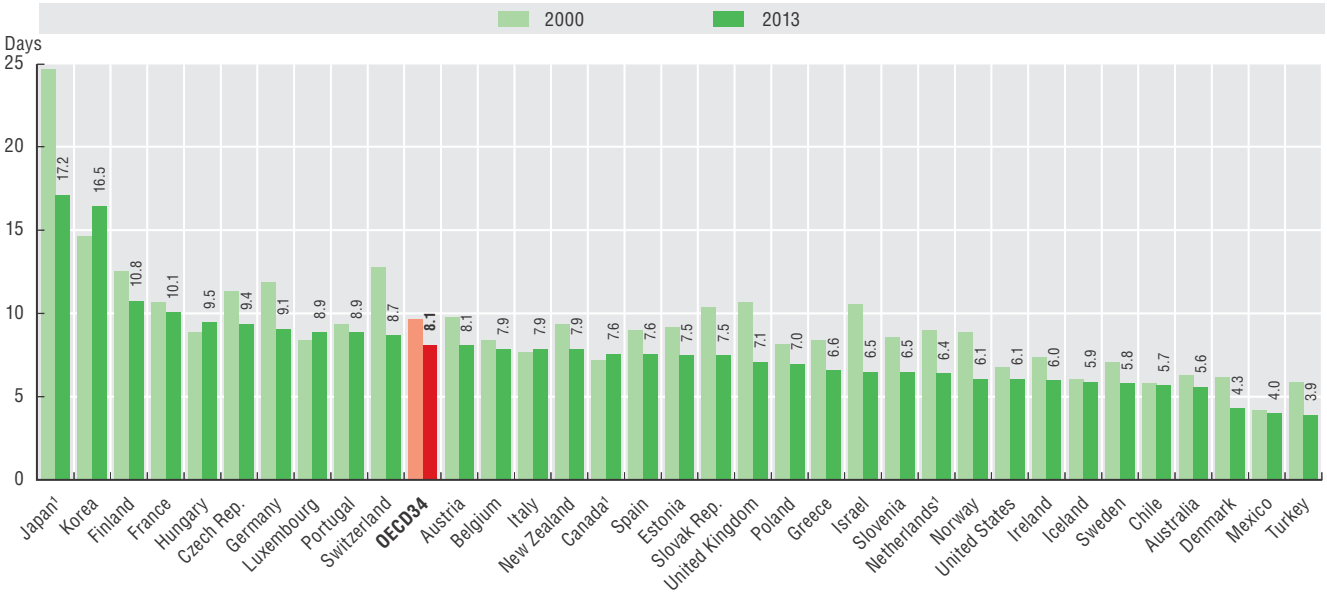
Discharges and average length of stay of healthy babies born in hospitals are excluded in several countries (e.g. Australia, Austria, Canada, Chile, Estonia, Finland, Greece, Ireland, Luxembourg, Mexico, Spain), resulting in a slight over-estimation (e.g., the inclusion of healthy newborns would reduce the ALOS by 0.5 day in Canada).

References

OECD (2013), *OECD Reviews of Health Care Quality: Denmark 2013: Raising Standards*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264191136-en*.

OECD and WHO (2011), *OECD Reviews of Health Systems: Switzerland 2011*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264120914-en*.

6.13. Average length of stay in hospital, 2000 and 2013 (or nearest year)

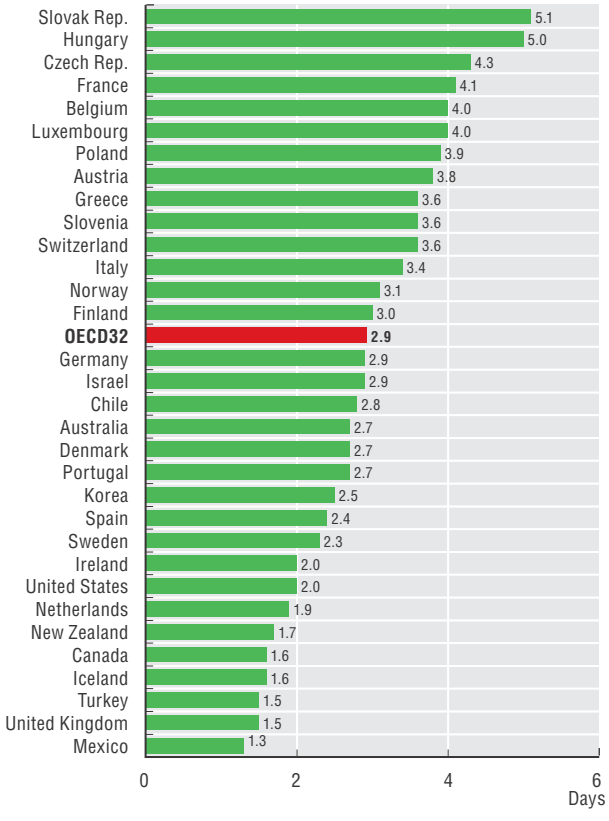


1. Data refer to average length of stay for curative (acute) care (resulting in an under-estimation).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281004

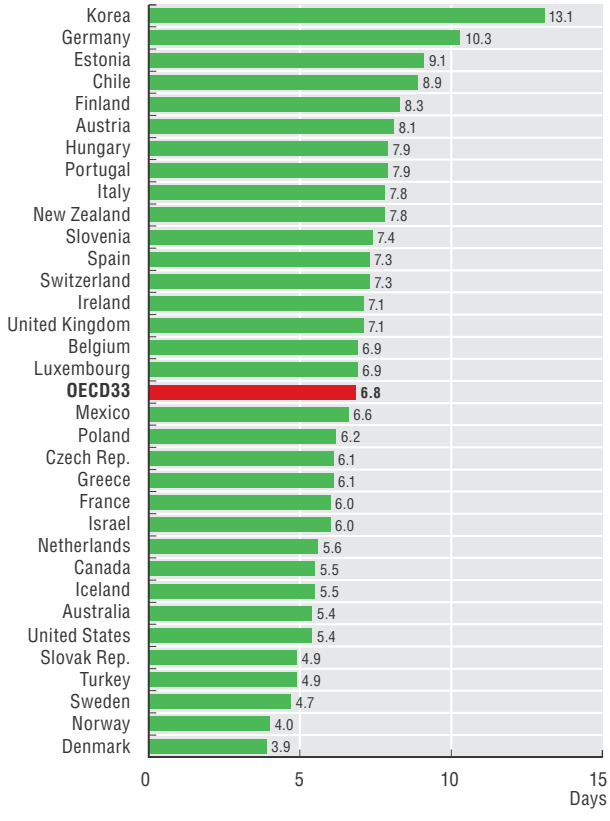
6.14. Average length of stay for normal delivery, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281004

6.15. Average length of stay for acute myocardial infarction (AMI), 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281004

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Cardiac procedures

Heart diseases are a leading cause of hospitalisation and death in OECD countries (see indicator on "Mortality from cardiovascular diseases" in Chapter 3). Coronary artery bypass graft and angioplasty have revolutionised the treatment of ischemic heart diseases in the past few decades. A coronary bypass is an open-chest surgery involving the grafting of veins and/or arteries to bypass one or multiple obstructed arteries. A coronary angioplasty is a much less invasive procedure involving the threading of a catheter with a balloon attached to the tip through the arterial system 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.

In 2013, Germany, Hungary and Austria had the highest rates of coronary revascularisation procedures, while the rates were lowest in Mexico and Chile (Figure 6.16).

A number of reasons can explain cross-country variations in the rate of coronary bypass and angioplasty, including: 1) differences in the capacity to deliver and pay for these procedures; 2) differences in clinical treatment guidelines and practices; and 3) differences in coding and reporting practices. However, 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 3.6 in Chapter 3). For example, IHD mortality in Germany is slightly below the OECD average, but Germany has the highest rate of revascularisation procedures.

National averages can hide important variations in utilisation rates within countries. For example, in Germany, the rate of coronary bypass surgery and angioplasty is nearly three times higher in certain regions compared with others. There are also wide variations in the use of these revascularisation procedures across regions in other countries such as Finland, France and Italy (OECD, 2014).

The use of angioplasty has increased rapidly over the past 20 years 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. On average across OECD countries, angioplasty now accounts for 78% of all revascularisation procedures (Figure 6.17), and is equal or exceeds 88% in Korea, Estonia, France and Spain. In many OECD countries, the growth in angioplasty was more rapid between 2000 and 2006 than afterwards. In the United States, the share of angioplasty increased quickly between 2000 and 2006, but has fallen slightly since then. Part of the explanation for this slight reduction may be due to the fact that the data reported by the United States do not cover the growing number of angioplasties carried out as day cases (without any overnight stay in hospital). In addition, the greater use of drug-eluting stents in the United States as well as in other countries reduces the likelihood that the same patient will need another angioplasty (Epstein et al., 2011).

Definition and comparability

The data for most countries cover both inpatient and day cases, with the exception of Chile, Denmark, Iceland, Norway, Portugal, Switzerland and the United States, where they only include inpatient cases (resulting in some under-estimation in the number of coronary angioplasties; this limitation in data coverage does not affect the number of coronary bypasses since nearly all patients are staying at least one night in hospital after such an operation). Some of the variations across countries may also be due to the use of different classification systems and different codes for reporting these two procedures.

In Ireland, Mexico, New Zealand and the United Kingdom, the data only include activities in publicly-funded hospitals, resulting in an under-estimation (it is estimated that approximately 15% of all hospital activity in Ireland is undertaken in private hospitals). Data for Portugal relate only to public hospitals on the mainland. Data for Spain only partially include activities in private hospitals.

References

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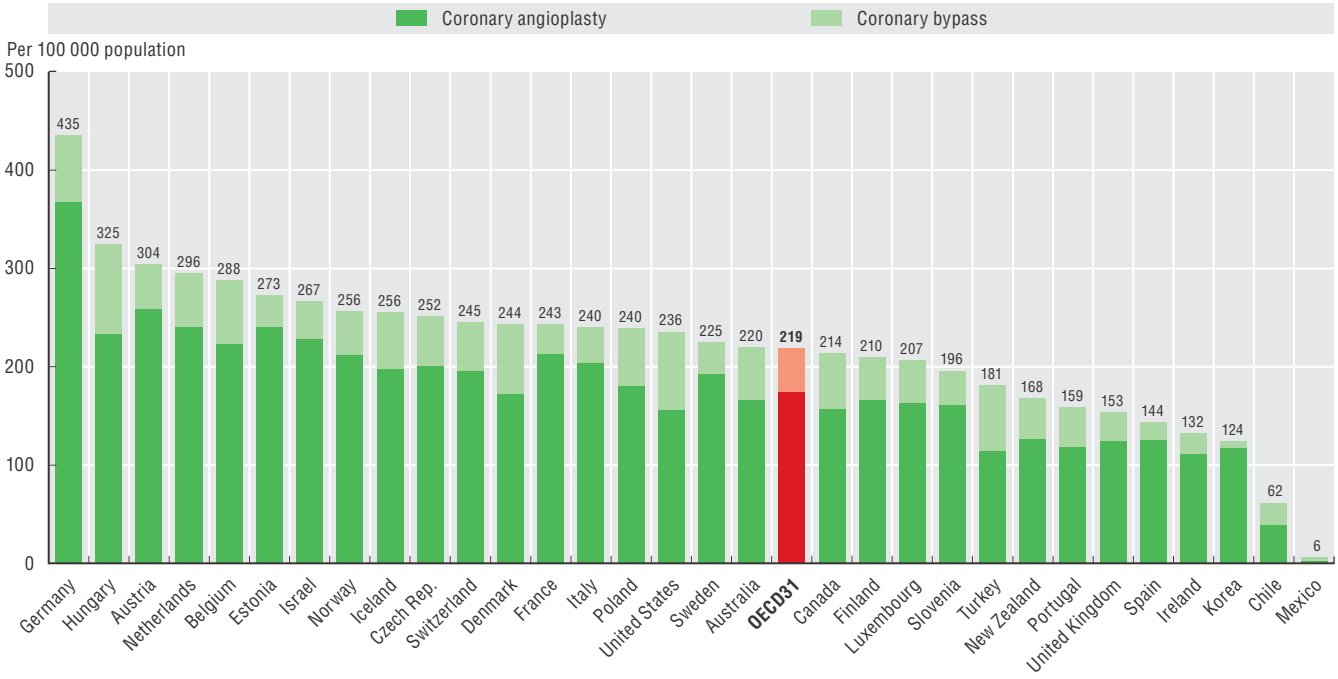
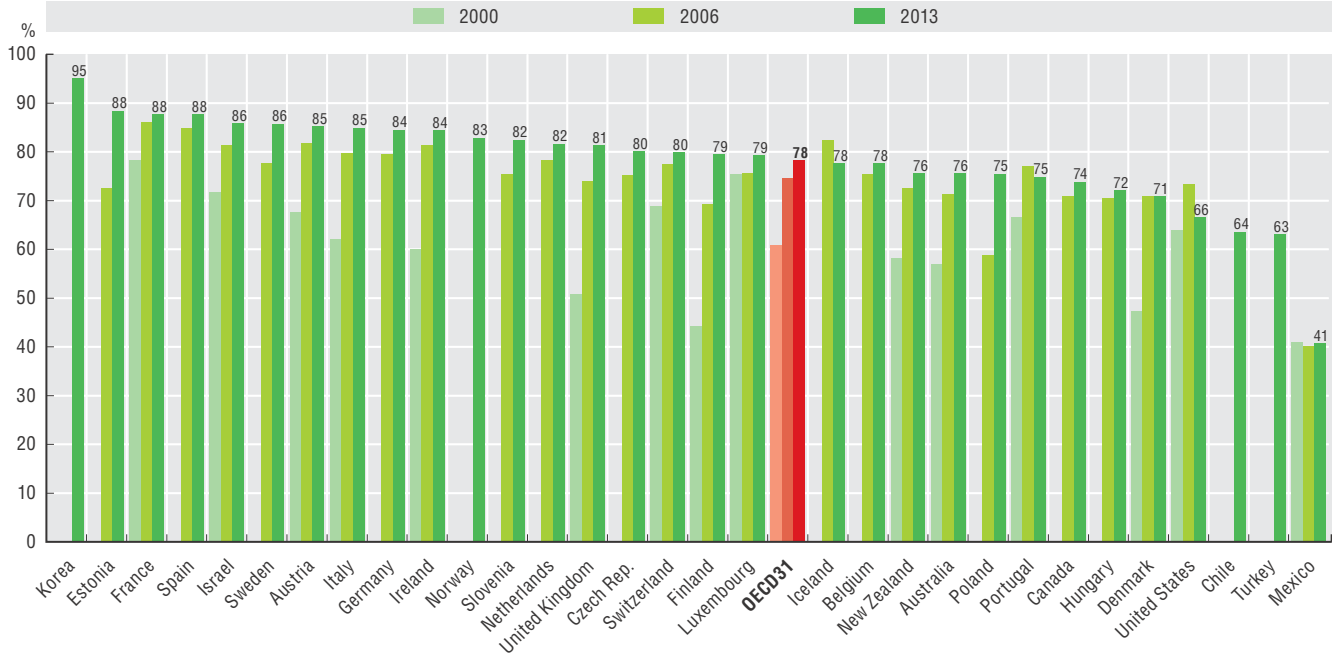
6.16. Coronary revascularisation procedures, 2013 (or nearest year)



Note: Some of the variations across countries are due to different classification systems and recording practices.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281011

6.17. Coronary angioplasty as a share of total revascularisation procedures, 2000 to 2013 (or nearest years)



Note: Revascularisation procedures include coronary bypass and angioplasty.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281011

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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.

Osteoarthritis is one of the ten most disabling diseases in developed countries. Worldwide estimates show that 10% of men and 18% of women aged over 60 years have symptomatic osteoarthritis, including moderate and severe forms (WHO, 2014). 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. While joint replacement surgery is mainly carried out among people aged 60 and over, it can also be performed among people at younger ages.

In 2013, Switzerland, Germany and Austria had the highest rates of hip replacement, while the United States had the highest rate of knee replacement, followed by Austria, Finland and Germany (Figures 6.18 and 6.19). Differences in population structure may explain part of these variations across countries, and age standardisation reduces to some extent the cross-country variations. Still, large differences persist and the country ranking does not change significantly after age standardisation (McPherson et al., 2013; OECD, 2014).

National averages can mask important variations in hip and knee replacement rates within countries. In Australia, Canada, Germany, France and Italy, the rate of knee replacement is more than two times higher in certain regions compared with others, even after age-standardisation (OECD, 2014).

The number of hip and knee replacements has increased rapidly since 2000 in most OECD countries (Figures 6.20 and 6.21). On average, the rate of hip replacement increased by about 35% between 2000 and 2013 and the rate of knee replacement nearly doubled. In France, the growth rate for both interventions was slightly lower, but still the hip replacement rate increased by about 15% while the knee replacement rate rose by nearly 90% between 2000 and 2013. In Germany, these surgical activity rates appear to have stabilised in recent years and even come down slightly in 2013.

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. Some countries only include total hip replacement (e.g. Estonia), while most countries also include partial replacement. In Ireland, Mexico, New Zealand and the United Kingdom, the data only include activities in publicly-funded hospitals (it is estimated that approximately 15% of all hospital activity is undertaken in private hospitals). Data for Portugal relate only to public hospitals on the mainland. Data for Spain only partially include activities in private hospitals.

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McPherson, K., G. Gon and M. Scott (2013), "International Variations in a Selected Number of Surgical Procedures", *OECD Health Working Papers*, No. 61, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5k49h4p5g9mw-en*.

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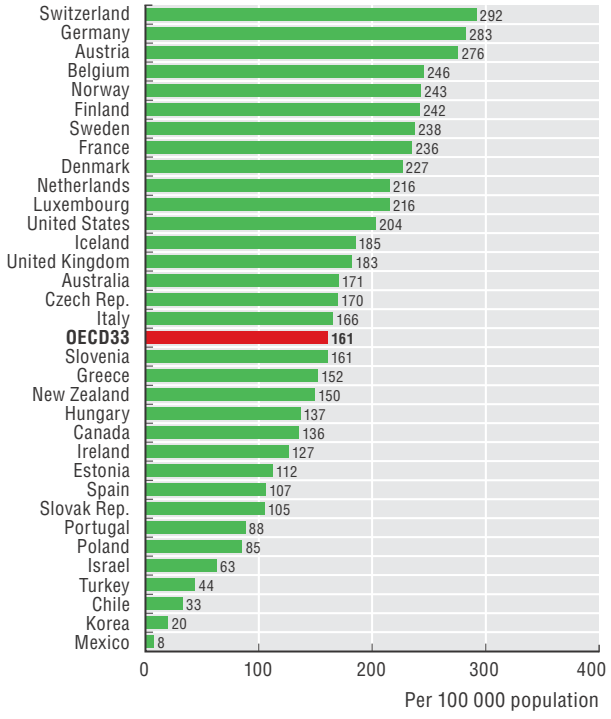
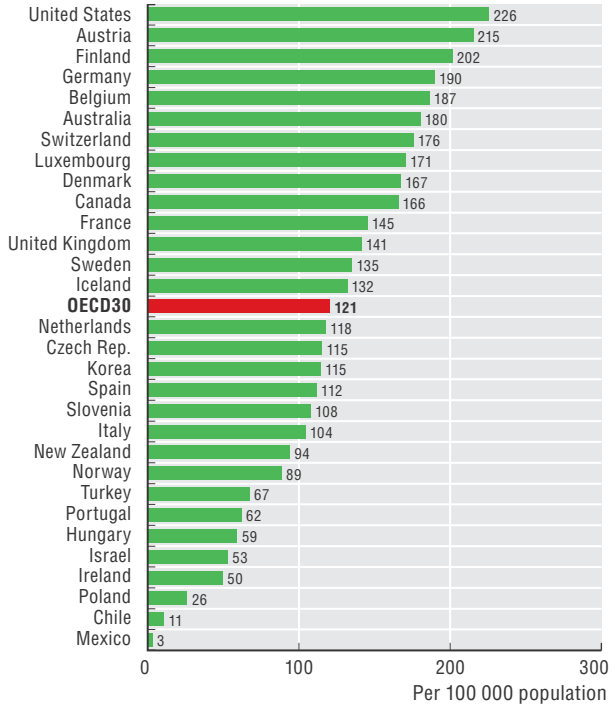
6.18. Hip replacement surgery, 2013 (or nearest year)



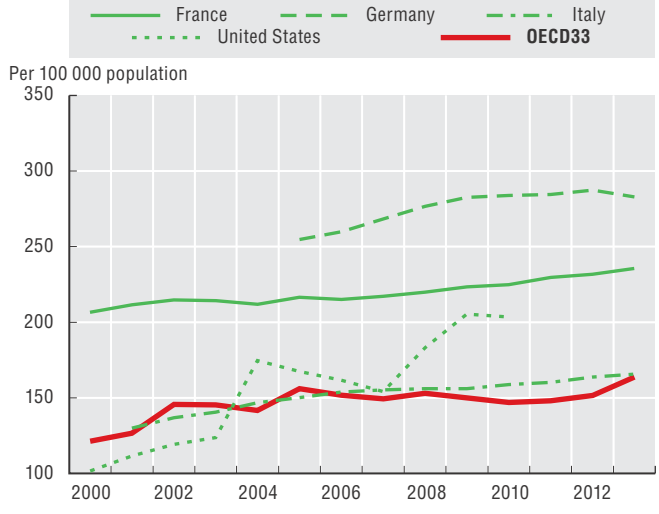
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281026

6.19. Knee replacement surgery, 2013 (or nearest year)



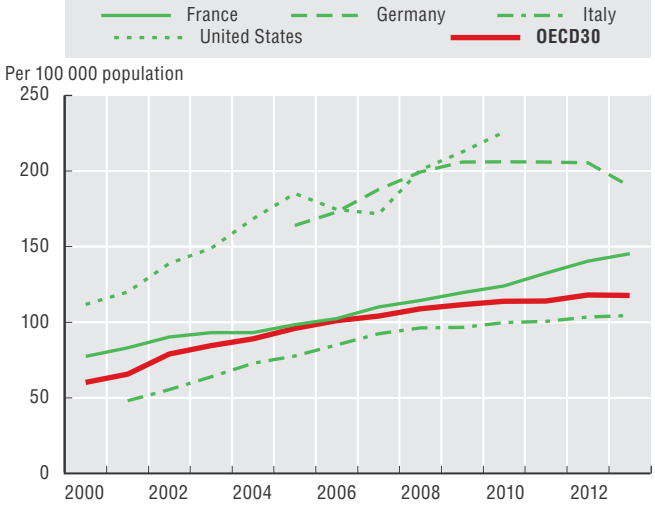
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281026

6.20. Trend in hip replacement surgery, selected OECD countries, 2000 to 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281026

6.21. Trend in knee replacement surgery, selected OECD countries, 2000 to 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281026

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Caesarean sections

Rates of caesarean delivery have increased in nearly all OECD countries, although in a few countries this trend has reversed at least slightly in the past few years. Reasons for the increase include the rise in first births among older women and in multiple births resulting from assisted reproduction, malpractice liability concerns, scheduling convenience for both physicians and patients, and the preferences of some women to have a caesarean section. Nonetheless, caesarean delivery continues to result in increased maternal mortality, maternal and infant morbidity, and increased complications for subsequent deliveries, raising questions about the appropriateness of caesarean delivery that may not be medically required.

In 2013, caesarean section rates were lowest in Nordic countries (Iceland, Finland, Sweden and Norway), Israel and the Netherlands, with rates ranging from 15% to 16.5% of all live births (Figure 6.22). They were highest in Turkey, Mexico and Chile, with rates ranging from 45% to 50%.

Caesarean rates have increased since 2000 in most OECD countries, with the average rate going up from 20% in 2000 to 28% in 2013 (Figure 6.23). The growth rate has been particularly rapid in those countries that have the highest rates now (Turkey, Mexico and Chile), as well as in Poland, the Slovak Republic and the Czech Republic which used to have relatively low rates. In some countries, however, the growth rate has slowed down since the mid-2000s and it has even come down slightly in Israel, Finland and Sweden. In Italy also, caesarean rates have come down significantly in recent years, although they remain very high. The rates have also come down in Spain.

There can be substantial variations in caesarean rates across regions and hospitals within the same country. In Italy, there continues to be huge variations in caesarean rates, driven by very large rates in the south of the country. In Spain also, there are large variations across regions (OECD, 2014).

In several countries, there is evidence that private hospitals tend to perform more caesarean sections than public hospitals. In France, private for-profit hospitals authorised to provide maternity care for pregnancies without complications have caesarean rates as high as public hospitals which have to deal with more complicated cases (FHF, 2008). In Switzerland, caesarean sections have been found to be substantially higher in private clinics (41%) than in public hospitals (30.5%) (OFSP, 2013).

A number of countries have taken different measures to reduce unnecessary caesarean sections. Public reporting, provider feedback, the development of clearer clinical guidelines, and adjustments to financial incentives have been used to try to reduce the inappropriate use of caesareans. In Australia, where caesarean section rates are high relative to most OECD countries, a number of States have developed clinical guidelines and required reporting of hospital caesarean section rates, including investigation of performance against the guidelines. These measures have discouraged variations in practice and contributed to slowing down the rise in caesarean sections. Other countries have reduced the gap in hospital payment rates between a caesarean section and a normal delivery, with the aim to discourage the inappropriate use of caesareans (OECD, 2014).

Definition and comparability

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

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.

References

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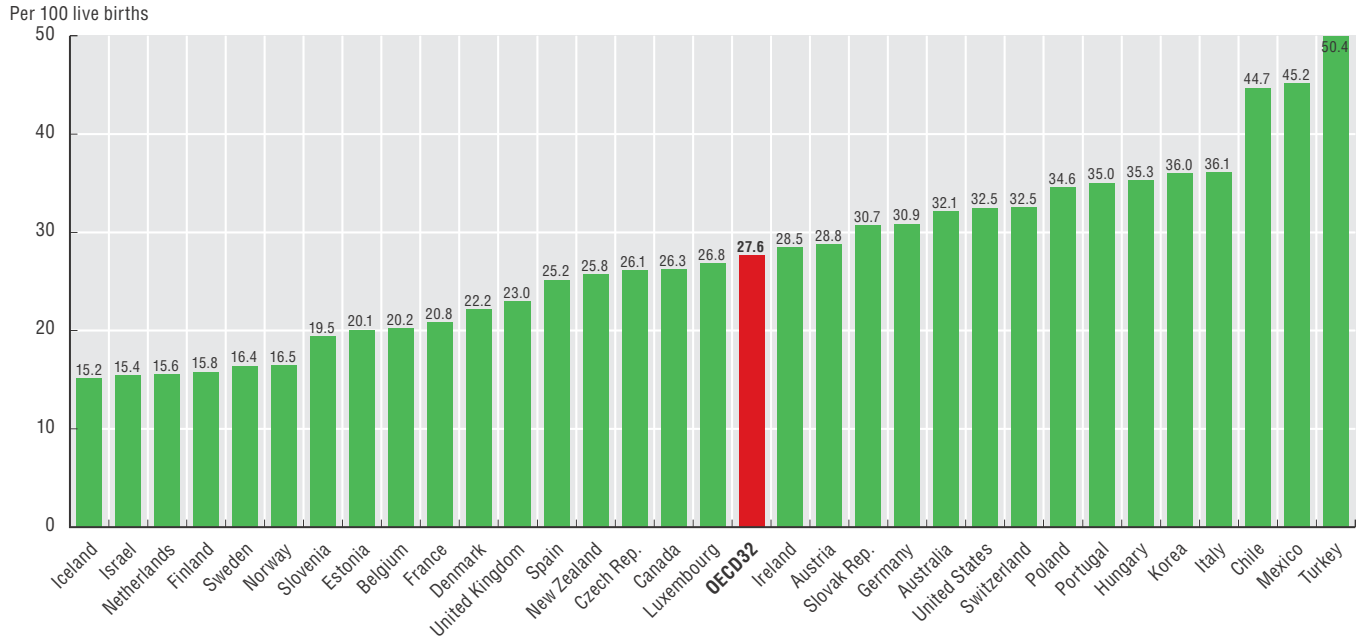
OECD (2014), *Geographic Variations in Health Care: What Do We Know and What Can Be Done to Improve Health System Performance?*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264216594-en*.

OFSP – Office fédéral de la santé publique (2013), *Accouchements par césarienne en Suisse* [Births by Caesareans in Switzerland], Bern.

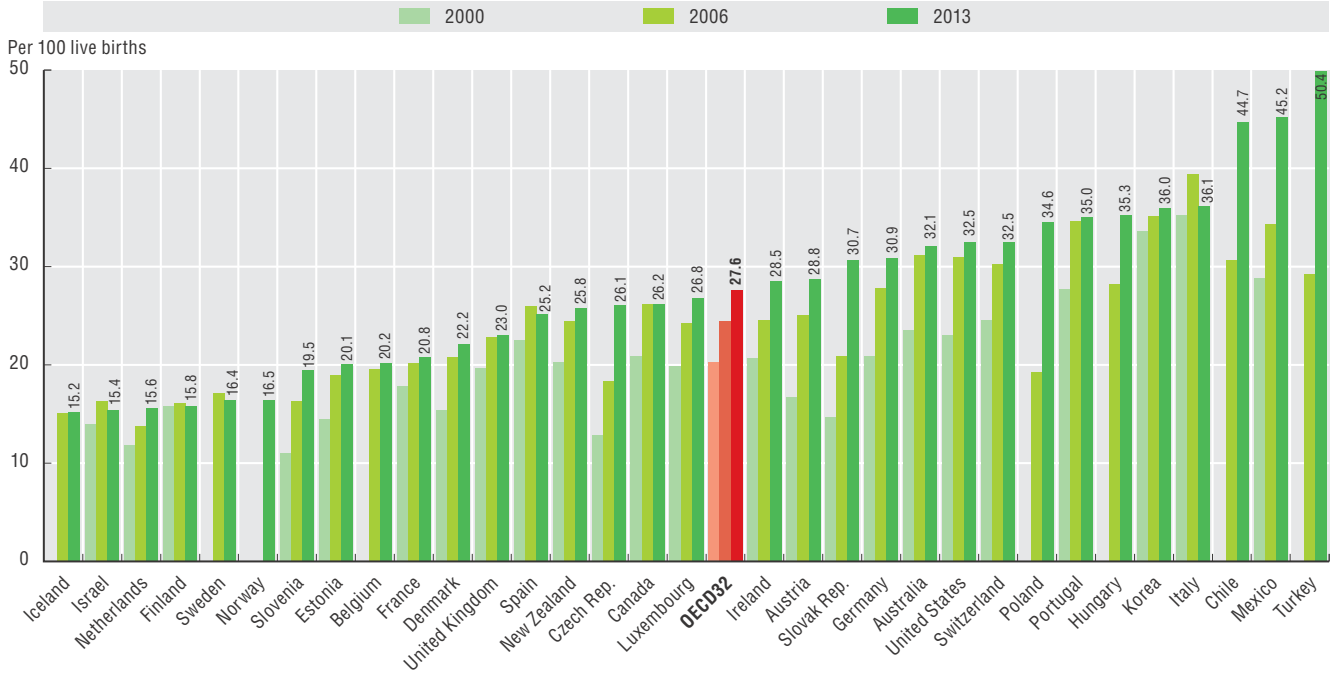
6.22. Caesarean section rates, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281033

6.23. Changes in caesarean section rates, 2000 to 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281033

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Ambulatory surgery

In the past few decades, the number of surgical procedures carried out on a same-day basis has increased markedly in 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 improved patient safety and health outcomes, and have also in many cases reduced the unit cost per intervention by shortening the length of stay in hospitals. However, the impact of the rise in same-day surgeries on health spending depends not only on changes in their unit cost, but also on the growth in the volume of procedures performed. There is also a need to take into account any additional cost related to post-acute care and community health services following the interventions.

Cataract surgery and tonsillectomy (the removal of tonsils, glands at the back of the throat, mainly performed on children) provide good examples of high-volume surgeries which are now carried out mainly on a same-day basis in many OECD countries.

Day surgery now accounts for over 90% of all cataract surgeries in a majority of OECD countries (Figure 6.24). In several countries, nearly all cataract surgeries are performed as day cases. However, the use of day surgery is still relatively low in Poland, Hungary and the Slovak Republic, where they still account for less than half of all cataract surgeries. While this may be partly explained by limitations in the data coverage of outpatient activities in hospital or outside hospital, this may also reflect more advantageous reimbursement for inpatient stays or constraints on the development of day surgery. In Hungary, the government recently abolished the budget cap on the number of same-day surgery that can be performed in hospital; this is expected to lead to a steady increase in the number of cataract and other surgeries performed as day cases.

The number of cataract surgeries performed on a same-day basis has grown very rapidly since 2000 in many countries, such as Portugal and Austria (Figure 6.24). Whereas fewer than 10% of cataract surgeries in Portugal were performed on a same-day basis in 2000, this proportion has increased to 92%. In Austria, the share of cataract surgeries performed as day cases increased from 1% only in 2000 to 67% in 2013. The number of cataract surgeries carried out as day cases has also risen rapidly in France, Ireland, Switzerland and Luxembourg, although there is still room for further development.

Tonsillectomy is one of the most frequent surgical procedures on children, usually performed on children suffering from repeated or chronic infections of the tonsils or suffering from breathing problems or obstructive sleep apnea due to large tonsils. Although the operation is performed under general anaesthesia, it is now carried out mainly as a same-day surgery in many countries, with children returning home the same day (Figure 6.25). This is the case in Finland (where the share of same-day surgery has increased greatly since 2000), Canada, Belgium, the Netherlands, Sweden and Norway, where more than half of all tonsillectomy are now performed on a same-day basis. This proportion is much lower in Austria (where virtually no tonsillectomy is performed on a same-day basis), Luxembourg, Ireland and Germany. These large differences in the share of same-day surgery may reflect variations in the perceived risks of postoperative complications, or simply clinical traditions of keeping children for at least one night in hospital after the operation.

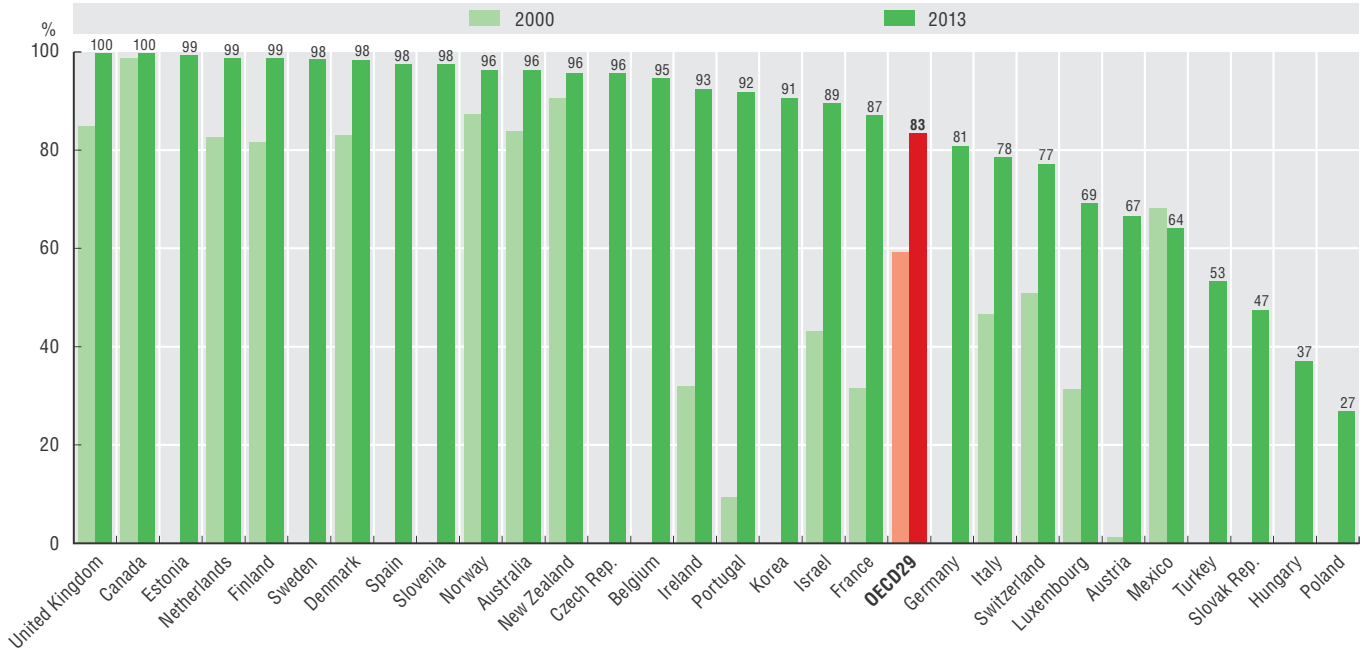
In some countries, there has been a strong rise however in the share of tonsillectomy performed as day surgery since 2000. Beyond Finland which is now leading the way, the share of same-day surgery has increased rapidly over the past decade in the United Kingdom, Denmark, Portugal and Italy. In France, there has virtually been no increase in the share of day surgery for tonsillectomy since 2000, while this share has decreased slightly in Israel and Switzerland. There appears to be ample room for further growth in day surgery for tonsillectomy in these countries to reduce cost without affecting patient outcomes.

Definition and comparability

Cataract surgery consists of removing the lens of the eye because of the presence of cataracts which are partially or completely clouding the lens, and replacing it with an artificial lens. It is mainly performed on elderly people. Tonsillectomy consists of removing the tonsils, glands at the back of the throat. It is mainly performed on children.

The data for several countries do not include outpatient cases in hospital or outside hospital (i.e., patients who are not formally admitted and discharge), leading to some under-estimation. In Ireland, Mexico, New Zealand and the United Kingdom, the data only include cataract surgeries carried out in public or publicly-funded hospitals, excluding any procedures performed in private hospitals (in Ireland, it is estimated that approximately 15% of all hospital activity is undertaken in private hospitals). Data for Portugal relate only to public hospitals on the mainland. Data for Spain only partially include activities in private hospitals.

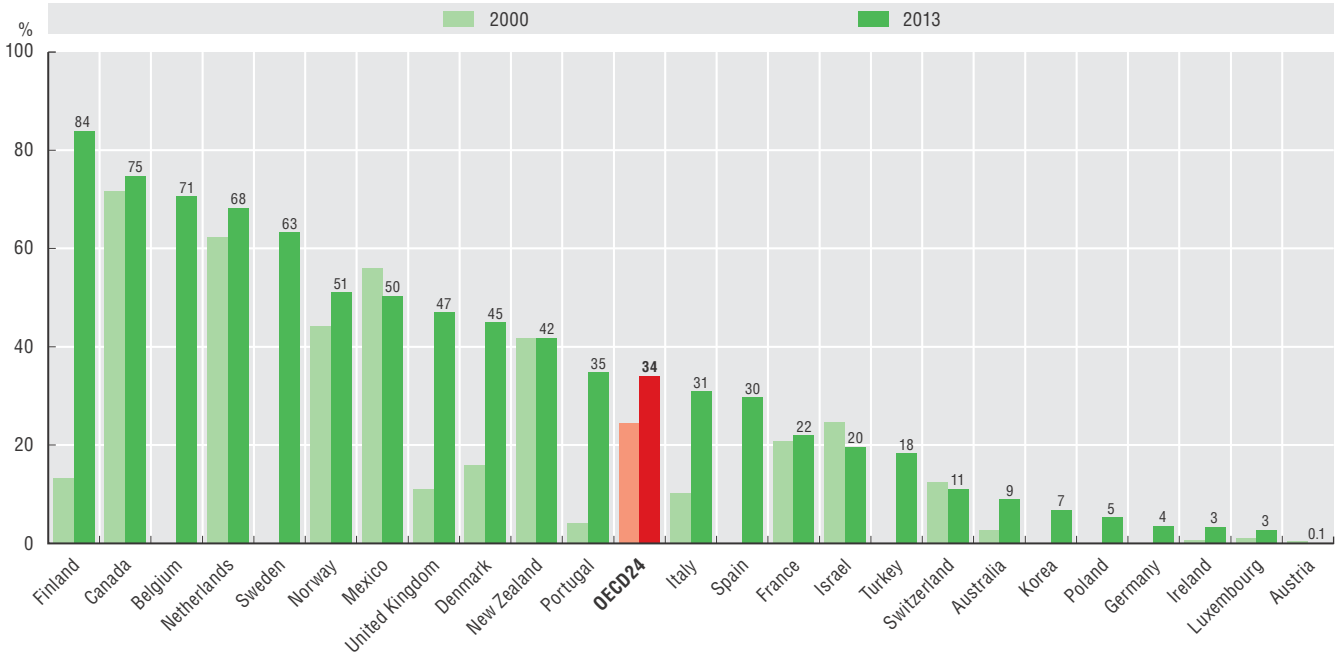
6.24. Share of cataract surgeries carried out as ambulatory cases, 2000 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281044

6.25. Share of tonsillectomy carried out as ambulatory cases, 2000 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281044

Information on data for Israel: *http://oe.cd/israel-disclaimer*

7. ACCESS TO CARE

Coverage for health care

Unmet needs for medical care and dental care

Out-of-pocket medical expenditure

Geographic distribution of doctors

Waiting times for elective surgery

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Coverage for health care

Health care coverage through public or private health insurance promotes access to medical goods and services, and provides financial security against unexpected or serious illness. However, the percentage of the population covered by such insurance does not provide a complete indicator of accessibility, since the range of services covered and the degree of cost-sharing applied to those services also affects access to care.

Most OECD countries have achieved universal (or 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 7.1). Generally, dental care and pharmaceutical drugs are partially covered, although there are a number of countries where these services must be purchased separately (OECD, 2015).

Three OECD countries do not have universal (or near-universal) health coverage: Greece, the United States and Poland. In Greece, the economic crisis has reduced health insurance coverage among people who have become long-term unemployed, and many self-employed workers have also decided not to renew their health insurance plan because of reduced disposable income. However, since June 2014, uninsured people are covered for prescribed pharmaceuticals and for services in emergency departments in public hospitals, as well as for non-emergency hospital care under certain conditions (Eurofound, 2014). In the United States, coverage is provided mainly through private health insurance, and 54% of the population had this for their basic coverage in 2014. Publicly financed coverage insured 34.5% of the population (the elderly, people with low income or with disabilities), leaving 11.5% of the population without insurance. The percentage of the population uninsured decreased from 14.4% in 2013 to 11.5% in 2014, following the implementation of the Affordable Care Act which is designed to expand health insurance coverage (Cohen and Martinez, 2015). In Poland, a tightening of the law in 2012 made people lose their social health insurance coverage if they fail to pay their contribution. However, it is common for uninsured people who need medical care to go to emergency services in hospital, where they will be encouraged to get an insurance.

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, nine have private coverage for over half of the population (Figure 7.2).

Private health insurance offers 95% of the French population *complementary* insurance to cover cost-sharing in the social security system. The Netherlands has the largest *supplementary* market (86% of the population), followed by Israel (83%), 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 (45%) and Australia (47%).

The population covered by private health insurance has increased in some OECD countries over the past decade, whereas it has decreased in others. It increased in some Nordic countries such as Denmark where one-third of the population now has a private health insurance (up from less 10% in 2005) and in Finland where the growth has been more modest, but remains almost non-existent in other Nordic countries. Private health insurance coverage has also increased in Australia and Korea, but it has come down in Ireland, New Zealand and the United Kingdom (Figure 7.3).

The importance of private health insurance is linked to several factors, including gaps in access to publicly financed services, government interventions directed at private health insurance markets, and historical development.

Definition and comparability

Coverage for health care is defined here as the share of the population receiving a core 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 coverage can be subsidised by government.

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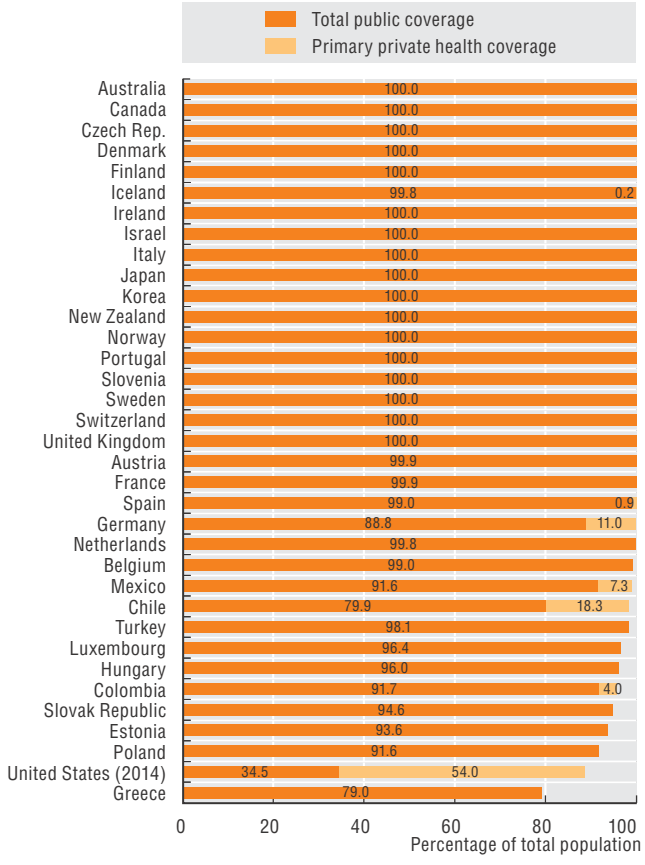
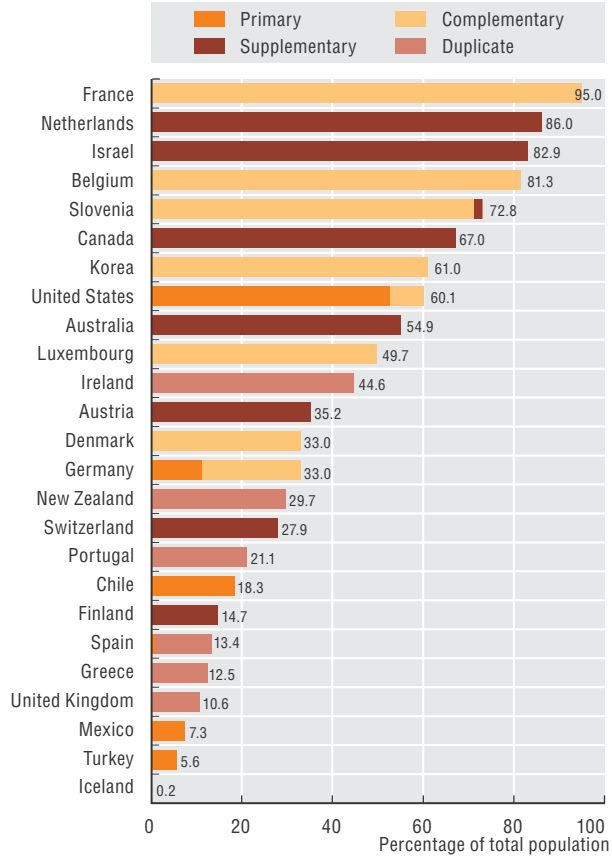
7.1. Health insurance coverage for a core set of services, 2013



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink *http://dx.doi.org/10.1787/888933281052*

7.2. Private health insurance coverage, by type, 2013 (or nearest year)

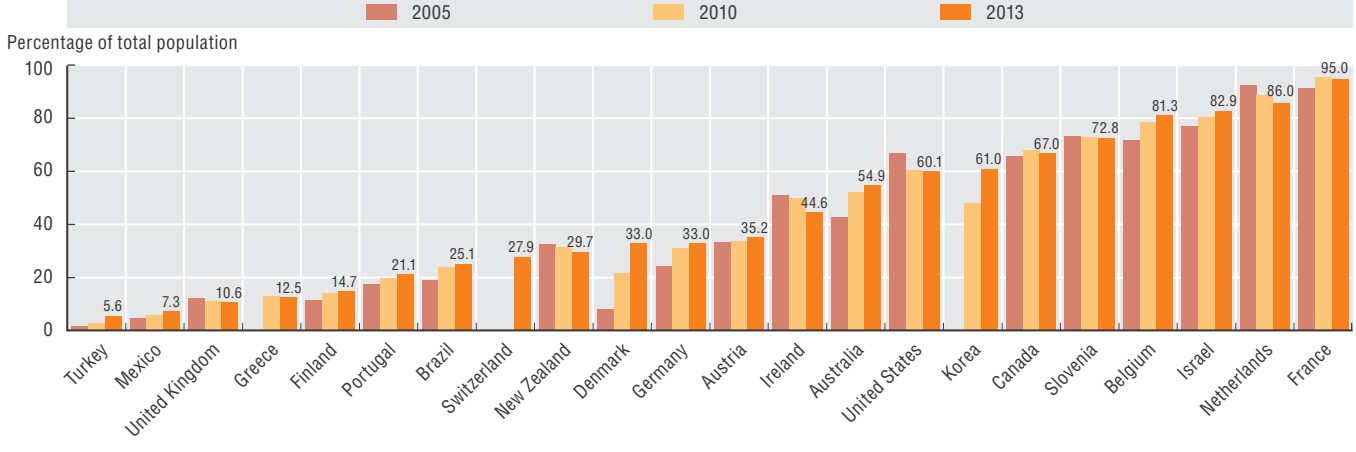


Note: Private health insurance can be both duplicate and supplementary in Australia; both complementary and supplementary in Denmark and Korea; and duplicate, complementary and supplementary in Israel and Slovenia.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink *http://dx.doi.org/10.1787/888933281052*

7.3. Evolution in private health insurance coverage, 2005 to 2013



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink *http://dx.doi.org/10.1787/888933281052*

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Unmet needs for medical care and dental care

Access to health care may be prevented for a number of reasons related either to the functioning of the health care system itself (like the cost of a doctor visit or medical treatment, the distance to the closest health care facility, or waiting lists) or to personal reasons (like fear of not being understood by the doctor or not having the time to seek care). People who forgo health care when they need it may jeopardize their health status. Any inequalities in unmet care needs may result in poorer health status and increase health inequalities.

Around 3% of the population on average across Europe reported unmet needs for medical care due to cost, travelling distance and waiting lists in 2013, according to the European Union "Statistics on Income and Living Conditions" survey. But there are large variations across countries (Figure 7.4). Larger shares of the population report unmet needs in Latvia, Greece, Poland and Estonia, while less than 1% of the population reported unmet needs in the Netherlands, Austria, Spain, Luxembourg and the Czech Republic. Unmet needs for medical examination are consistently higher among people in low income groups compared with those in high income groups (Figure 7.4). The gap was particularly large in 2013 in Latvia, Italy and Greece.

A higher proportion of the population in European countries reports some unmet needs for dental care than for medical care, reflecting the fact that public coverage for dental care is generally lower in most countries. Latvia (18.9%), Portugal (14.3%), Iceland (11.1%) and Italy (10%), reported the highest rates of unmet needs for dental care among European countries in 2013 (Figure 7.5). In these countries, there were large inequalities in unmet dental care needs between low and high income groups. On average across European countries covered under this survey, nearly 10% of low income people reported having some unmet needs for dental care, compared with 1.6% for high income people.

Countries participating in the Commonwealth Fund International Health Policy Survey, and other countries using the same survey module, collect data on unmet care needs for doctor visits, medical care and prescribed pharmaceutical drugs due to cost. As expected, the results from these surveys show consistently higher unmet care needs for financial reasons among low income people compared with high income people (Figure 7.6). The largest proportions of unmet care needs in 2013 were found in the United States, while the United Kingdom had the lowest rates, followed by Sweden. There were large gaps in unmet care needs between high and low income people in the Czech Republic, France and the United States.

It is important to consider self-reported unmet care needs in conjunction with other indicators of potential barriers to access, such as the extent of health insurance coverage and the amount of out-of-pocket payments. For instance, the rate of unmet care needs decreased in Germany, following the abolition of a quarterly fee of EUR 10 charged to patients.

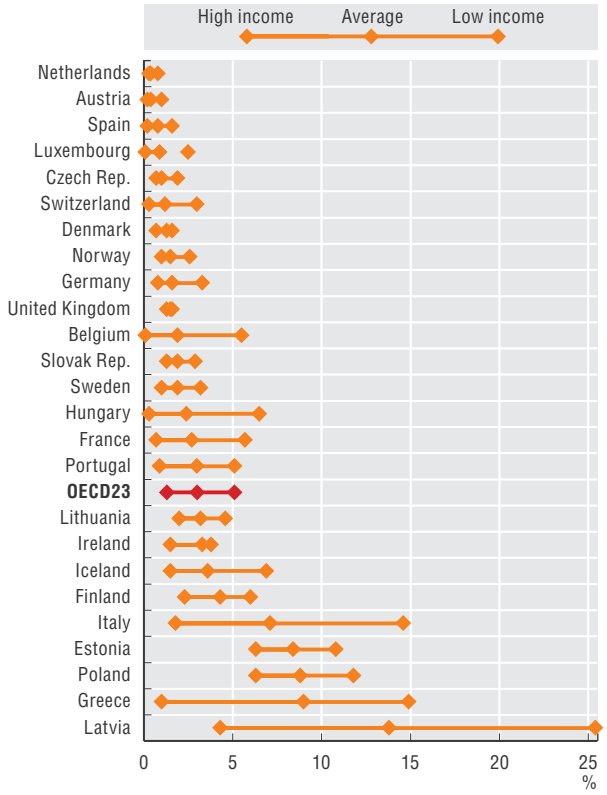
Strategies to improve access to care for disadvantaged or underserved populations need to tackle both financial and non-financial barriers, as well as promoting an adequate supply and proper distribution of doctors, dentists and other medical practitioners (see the indicator on "Geographic distribution of doctors").

Definition and comparability

Data on unmet care needs come from two main sources. First, the European Union Statistics on Income and Living Conditions survey (EU-SILC) ask survey respondents whether there was a time in the previous 12 months when they felt they needed a medical or dental examination but did not receive it, followed by a question as to why the need for care was unmet (with the reasons including that care was too expensive, the waiting time was too long, the travelling distance to receive care was too far, a lack of time, or that they wanted to wait and see if problem got better on its own). The data presented in Figures 7.4 and 7.5 cover unmet care needs due to cost, waiting time and travelling distance.

The second source is the 2013 Commonwealth Fund International Health Policy Survey which asks whether people did not visit a doctor when they had a medical problem, skipped a medical test, treatment, or follow-up that was recommended by a doctor, or did not fill prescription for medicines or skipped doses because of cost in the past year. This survey was carried out in eleven countries. Similar questions were also asked in the national survey in the Czech Republic a few years earlier (2010).

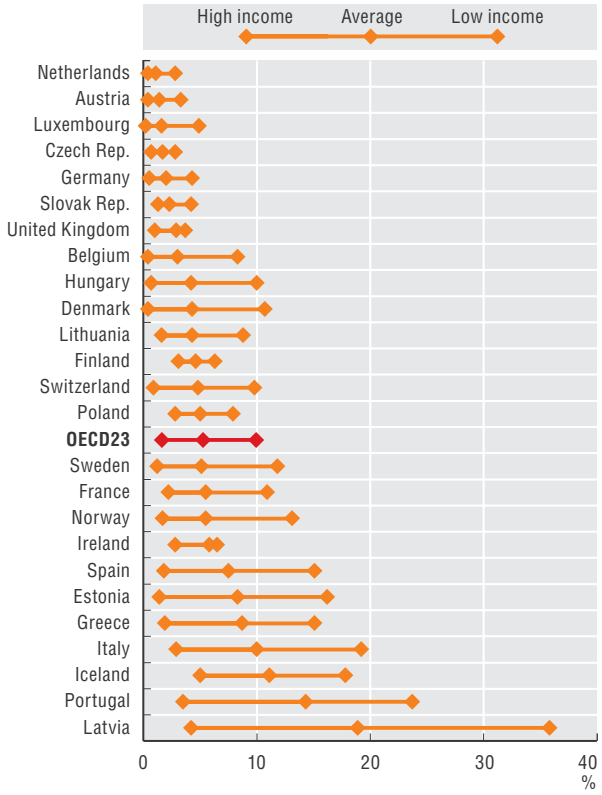
7.4. Unmet care needs for medical examination, by income level, 2013



Note: Unmet care needs for following reasons: too expensive, too far to travel, or waiting time.
Source: EU-SILC 2013.

StatLink http://dx.doi.org/10.1787/888933281066

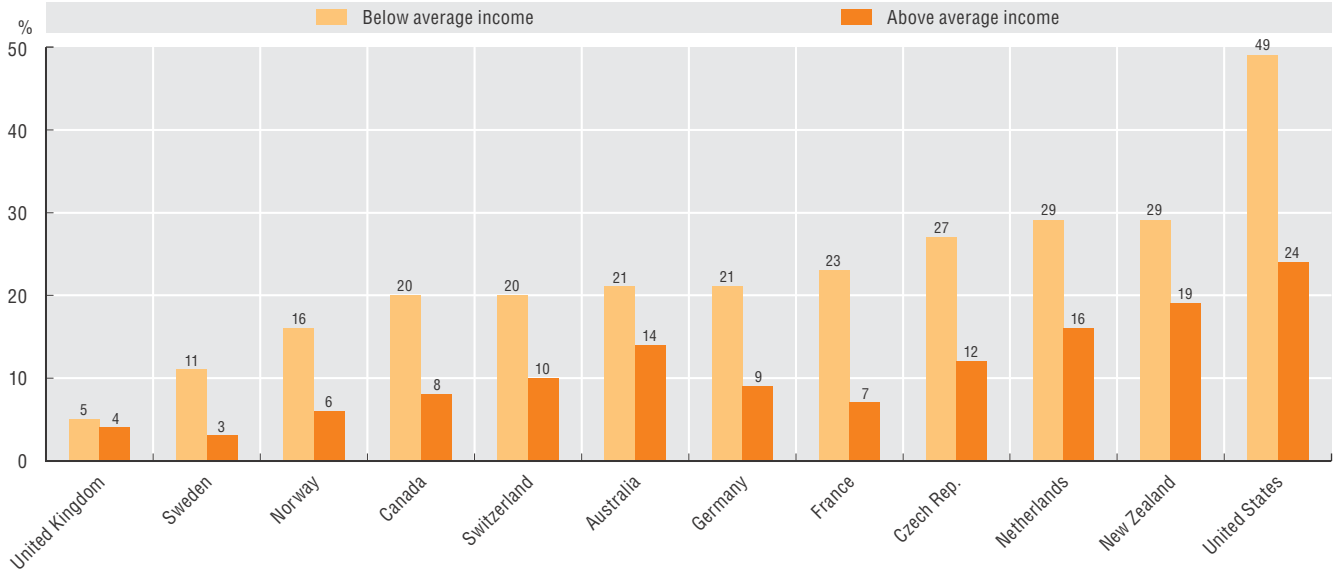
7.5. Unmet care needs for dental examination, by income level, 2013



Note: Unmet care needs for following reasons: too expensive, too far to travel, or waiting time.
Source: EU-SILC 2013.

StatLink http://dx.doi.org/10.1787/888933281066

7.6. Unmet care needs due to cost, by income level, 2013



Note: Either did not visit doctor when they had a medical problem, did not get recommended care or did not fill/skipped prescription.
Source: 2013 Commonwealth Fund International Health Policy Survey, complemented with data from the national survey for the Czech Republic (2010).

StatLink http://dx.doi.org/10.1787/888933281066

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Out-of-pocket medical 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 face difficulties paying medical bills may delay or even forgo needed health care. On average across OECD countries, 19% of health spending is paid directly by patients (see indicator "Financing of health care" in Chapter 9 on "Health expenditure").

In contrast to publicly-funded care, out-of-pocket payments rely on people's ability to pay. If the financing of health care becomes more dependent on out-of-pocket payments, the burden shifts, in theory, towards those who use services more, and possibly from high to low income households, where health care needs are higher. In practice, many countries have policies in place to protect certain population groups from excessive out-of-pocket payments. These consist in partial or total exemptions for social assistance beneficiaries, seniors, or people with chronic diseases or disabilities by capping direct payments, either in absolute terms or as a share of income (Paris et al., 2010; OECD, 2015).

The burden of out-of-pocket medical spending can be measured either by its share of total household income or its share of total household consumption. The share of household consumption allocated to medical spending varied considerably across OECD countries in 2013, ranging from less than 1.5% of total household consumption in countries such as Turkey, the Netherlands, France and the United Kingdom, to more than 4% in Korea, Switzerland and Greece (Figure 7.7). On average across OECD countries, 2.8% of household spending went towards medical goods and services.

Health systems in OECD countries differ in the degree of coverage for different health services and goods. In most countries, the degree of coverage is higher for hospital care and doctor consultations than for pharmaceuticals, dental care and eye care (Paris et al., 2010; OECD, 2015). Taking into account these differences and also the relative importance of these different spending categories, there are significant variations between OECD countries in the breakdown of the medical costs that households have to bear themselves.

In most OECD countries, curative care (including both inpatient and outpatient care) and pharmaceuticals are the two main spending items for out-of-pocket expenditure (Figure 7.8). On average, these two components account for two-thirds of all medical spending by households, but the importance varies between countries. In Luxembourg, Belgium and Switzerland, household payments for inpatient and outpatient curative care account for close to 50% of total household outlays. In other countries such as Poland, the Czech Republic, Hungary and Canada, half of out-of-pocket payments or more are for pharmaceuticals. In some of these countries, in addition to co-payments for prescribed pharmaceuticals, spending on over-the-counter medicines for self-medication has been historically high.

Payments for dental treatment also play a significant part in household medical spending, accounting for 20% of all out-of-pocket expenditure across OECD countries. In Estonia, Norway, Denmark and Spain, this figure reaches 30% or more. This can at least partly be explained by the limited public coverage for dental care in these countries compared with a more comprehensive coverage for other categories of care. The significance of therapeutic appliances (eye-glasses, hearing aids, etc.) in households' total medical spending differs widely, but is as much as 33% in the Netherlands. The average across OECD countries was 13%. More than half of this relates to eye-care products. In many countries, public coverage is limited to a contribution to the cost of lenses. Frames are often exempt from public coverage, leaving private households to bear the full cost if they are not covered by complementary private insurance.

Definition and comparability

Out-of-pocket payments are expenditures borne directly by a patient where neither public nor private insurance cover the full cost of the health good or service. They include cost-sharing and other expenditure paid directly by private households and should also include estimations of informal payments to health care providers. Only expenditure for medical spending (i.e. current health spending less expenditure for the health part of long-term care) is presented here, because the capacity of countries to estimate private long-term care expenditure varies widely.

Household final consumption expenditure covers all purchases made by resident households to meet their everyday needs such as food, clothing, rent or health services.

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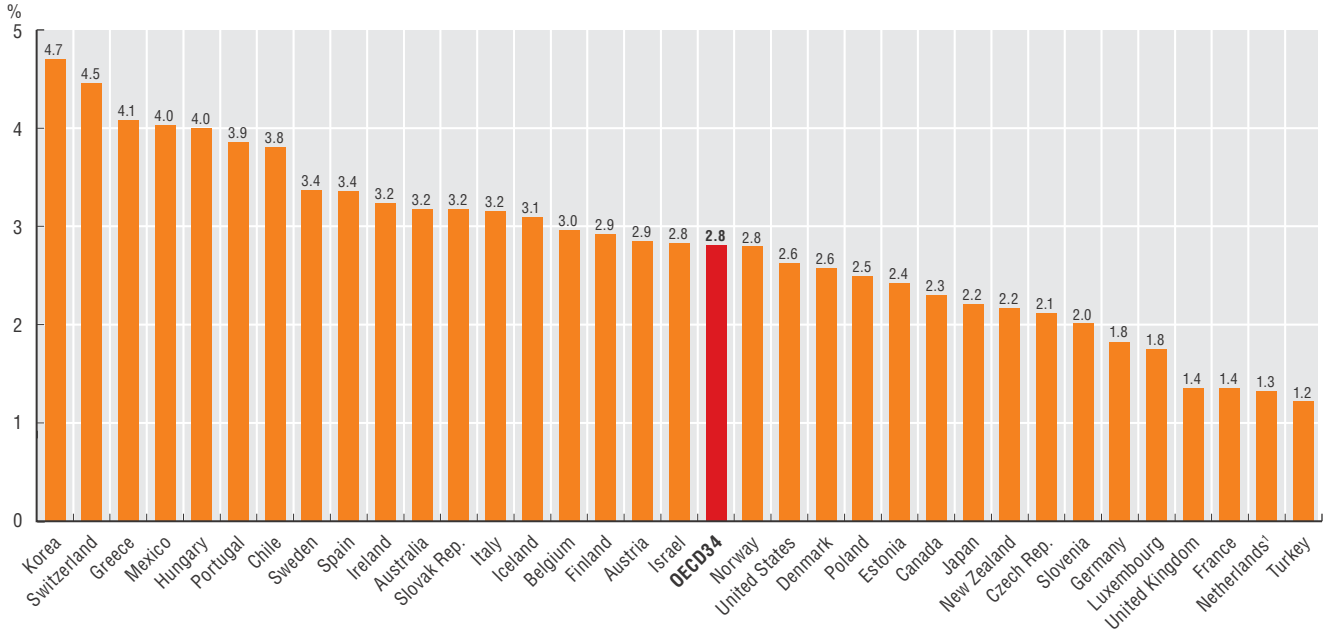
7.7. Out-of-pocket medical spending as a share of final household consumption, 2013 (or nearest year)



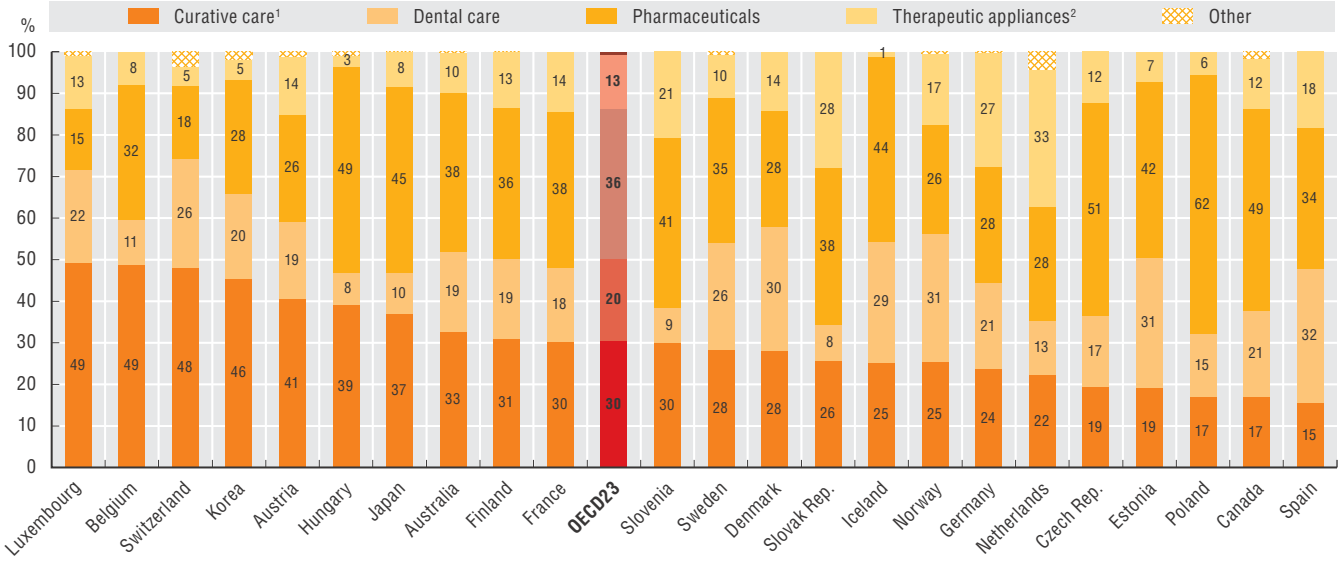
Note: This indicator relates to current health spending excluding long-term care (health) expenditure.

1. The value for the Netherlands is underestimated as it excludes compulsory co-payments by patients to health insurers (if these were taken into account this would double the share).

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281072

7.8. Shares of out-of-pocket medical spending by services and goods, 2013 (or nearest year)



Note: This indicator relates to current health spending excluding long-term care (health) expenditure.

1. Including rehabilitative and ancillary services.
2. Including eye care products, hearing aids, wheelchairs, etc.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281072

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Geographic distribution of doctors

Access to medical care requires an adequate number and proper distribution of doctors in all parts of the country. Any shortage of doctors in certain regions can increase travel times or waiting times for patients, and result in unmet care needs. The uneven distribution of doctors is an important policy issue in most OECD countries, especially in those countries with remote and sparsely populated areas, and those with deprived urban regions which may also be underserved.

The overall number of doctors per capita varies across OECD countries from lows of about two per 1 000 population in Chile, Turkey and Korea, to highs of five and more in Greece and Austria (see the indicator on "Doctors" in Chapter 5). Beyond these cross-country differences, the number of doctors per capita also often varies widely across regions within the same country (Figure 7.9). A common feature in many countries is that there tends to be a concentration of physicians in capital cities. For example, Austria, Belgium, the Czech Republic, Greece, Mexico, Portugal, the Slovak Republic and the United States have a much higher density of doctors in their national capital region.

The density of physicians is consistently greater in urban regions, reflecting the concentration of specialised services such as surgery and physicians' preferences to practice in urban settings. There are large differences in the density of doctors between predominantly urban and rural regions in France, Australia and Canada, although the definition of urban and rural regions varies across countries. The distribution of physicians between urban and rural regions is more equal in Japan and Korea, but there are generally fewer doctors in these two countries (Figure 7.10).

Doctors may be reluctant to practice in rural regions due to concerns about their professional life (including their income, working hours, opportunities for career development, isolation from peers) and social amenities (such as educational opportunities for their children and professional opportunities for their spouse).

A range of policy levers may influence the choice of practice location of physicians, including: 1) the provision of financial incentives for doctors to work in underserved areas; 2) increasing enrolments in medical education programmes of students coming from specific social or geographic background, or decentralising the location of medical schools; 3) regulating the choice of practice location of doctors (for new medical graduates or foreign-trained doctors); and 4) re-organising health service delivery to improve the working conditions of doctors in underserved areas and find innovative ways to improve access to care for the population.

Many OECD countries provide different types of financial incentives to attract and retain doctors in underserved areas, including one-time subsidies to help them set up their practice and recurrent payments such as income guarantees and bonus payments (Ono et al., 2014).

In France, the Ministry of Health launched at the end of 2012 a "Health Territory Pact" to promote the recruitment and retention of doctors and other health workers in underserved regions. This Pact includes a series of measures to facilitate the establishment of young doctors in underserved areas, to improve their working conditions (notably through the creation of new multi-disciplinary medical homes allowing physicians and other health professionals to work in the same location), to promote tele-medicine, and to accelerate the transfer of competences from doctors to other health care providers (Ministry of Health, 2015). The first results from this programme are promising, although it is still too early to reach any definitive conclusions on the cost-effectiveness of various measures.

In Germany, the number of practice permits for new ambulatory care physicians in each region is regulated, based on a national service delivery quota.

The effectiveness and cost of different policies to promote a better distribution of doctors can vary significantly, with the impact likely to depend on the characteristics of each health system, the geography of the country, physician behaviours, and the specific policy and programme design. Policies should be designed with a clear understanding of the interests of the target group in order to have any significant and lasting impact (Ono et al., 2014).

Definition and comparability

Regions are classified in two territorial levels. The higher level (Territorial Level 2) consists of large regions corresponding generally to national administrative regions. These broad regions may contain a mix of urban, intermediate and rural areas. The lower level is composed of smaller regions classified as predominantly urban, intermediate or rural regions, although there are variations across countries in the classification of these regions.

References

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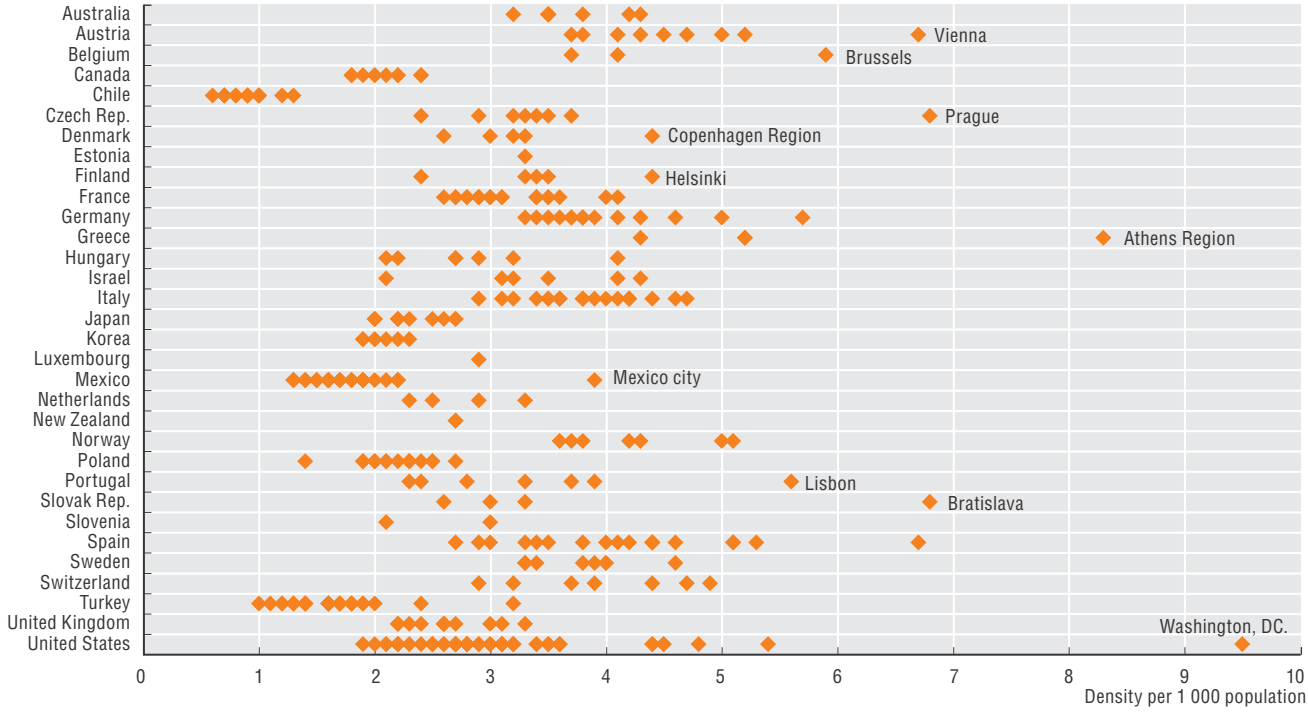
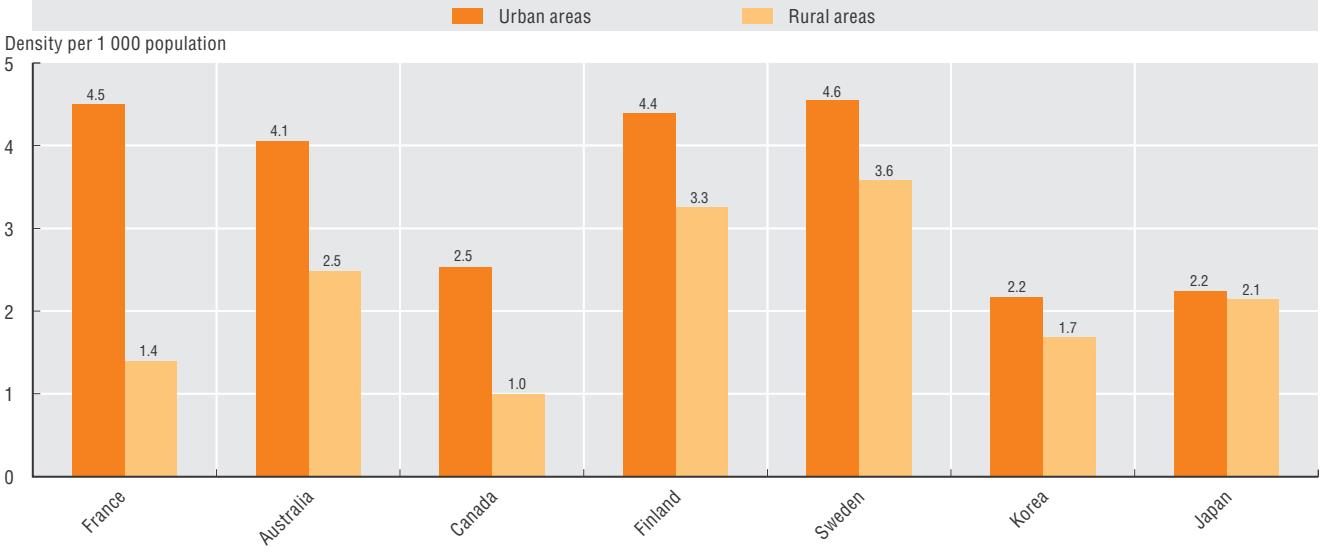
7.9. Physician density, by Territorial Level 2 regions, 2013 (or nearest year)



Source: *OECD Regions at a Glance 2015.*

StatLink http://dx.doi.org/10.1787/888933281083

7.10. Physicians density in predominantly urban and rural regions, selected countries, 2013 (or nearest year)



Note: The classification of urban and rural regions varies across countries.
Source: Australia: AIHW National Health Workforce Data Set (NHWDS) 2013; Canada: Scott's Medical Database, 2013, Canadian Institute for Health Information; France: RPPS médecins au 1er janvier 2015; Other: *OECD Regions at a Glance 2015.*

StatLink http://dx.doi.org/10.1787/888933281083

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Waiting times for elective surgery

Long waiting times for health services is an important policy issue in many OECD countries (Siciliani et al., 2013). Long waiting times for elective (non-emergency) surgery, such as cataract surgery, hip and knee replacement, generates dissatisfaction for patients because the expected benefits of treatments are postponed, and the pain and disability remains. While long waiting times is considered an important policy issue in many countries, this is not the case in others (e.g., Belgium, France, Germany, Japan, Korea, Luxembourg, Switzerland, United States).

Waiting times is the result of a complex interaction between the demand and supply of health services, where doctors play a critical role on both sides. The demand for health services and elective surgery is determined by the health status of the population, progress in medical technologies (including the increase ease of many procedures like cataract which can now be performed as day surgery), patient preferences (including their weighting of the expected benefits and risks), and the extent of cost-sharing for patients. However, doctors play a crucial role in converting the demand for better health from patients in a demand for medical care. On the supply side, the availability of different categories of surgeons, anaesthesists and other staff involved in surgical procedures, as well as the supply of the required medical and hospital equipment influence surgical activity rates.

The measure used here focuses on waiting times from the time that a medical specialist adds a patient to the waiting list to the time that the patient receives the treatment. Both the average waiting time and the median are presented. Because some patients wait for very long times, the average is usually greater than the median.

In 2013/14, the average waiting times for cataract surgery was just over 30 days in the Netherlands, but much longer in Chile, Estonia and Poland (Figure 7.11). In the United Kingdom, the average waiting times for cataract surgery was 72 days in 2013, slightly up from 66 days in 2007. In Portugal and Spain, waiting times fell between 2007 and 2010, but has increased since then. In Finland and Estonia, waiting times for cataract surgery has fallen steadily, although the average waiting times remains high in Estonia.

In 2013/14, the average waiting times for hip replacement was just over 40 days in the Netherlands, but around 250 days in Estonia and over 300 days in Chile and Poland (Figure 7.12). The median waiting times was around 40 days in Denmark, 60 days in Israel, and between 75 and 90 days in Hungary, the United Kingdom, Portugal, Canada and New Zealand. It reached between 120 and 150 days in Spain, Norway and Estonia, and over 200 days in Poland and Chile. As is the case for cataract surgery, waiting times for hip replacement fell in Portugal and Spain between 2007 and 2010, but has gone up since then.

Waiting times for knee replacement has come down in recent years in the Netherlands, Denmark, Finland and Estonia, although it remains very long in Estonia (Figure 7.13).

Over the past decade, waiting time guarantees have become the most common policy tool to tackle long waiting times in several countries. This has been the case in Finland where a National Health Care Guarantee was introduced in 2005 and led to a reduction in waiting times for elective surgery (Jonsson et al., 2013). In England, since April 2010, the NHS Constitution has set out a right to access certain services within maximum waiting times or for the NHS to take all reasonable steps to offer a range of alternative providers if this is not possible (Smith and Sutton, 2013). These guarantees are only effective if they are enforced. There are two main approaches to enforcement: setting waiting time targets and holding providers accountable for achieving these targets; or allowing patients to choose alternative health providers (including the private sector) if they have to wait beyond a maximum amount of time (Siciliani et al., 2013).

Definition and comparability

There are at least two ways of measuring waiting times for elective procedures: 1) measuring the waiting times for patients treated in a given period; or 2) measuring waiting times for patients still on the list at a point in time. The data reported here relate to the first measure (data on the second measure are available in the OECD health database). The data come from administrative databases (not surveys). Waiting times are reported both in terms of the average and the median. The median is the value which separates a distribution in two equal parts (meaning that half the patients have longer waiting times and the other half lower waiting times). Compared with the average, the median minimises the influence of outliers (patients with very long waiting times).

References

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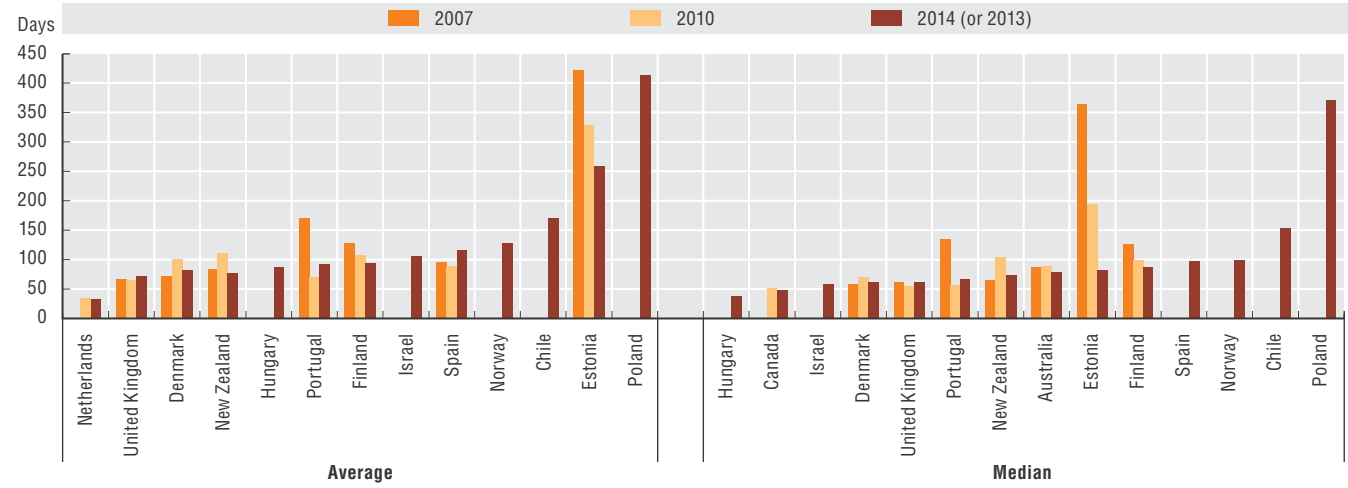
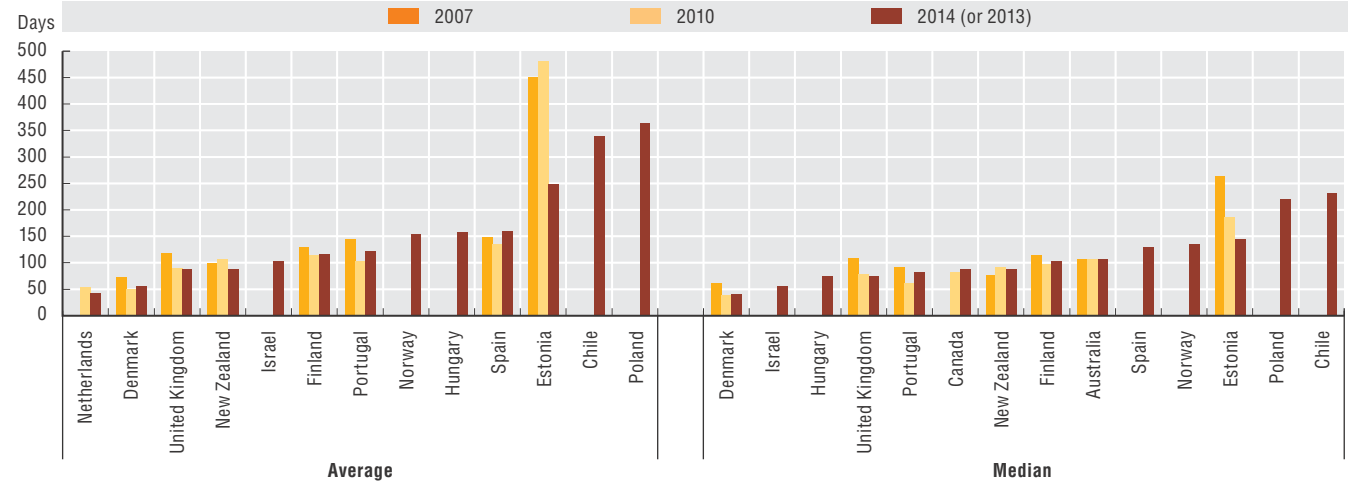
7.11. Cataract surgery, waiting times from specialist assessment to treatment, 2007 to 2014 (or 2013)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281097

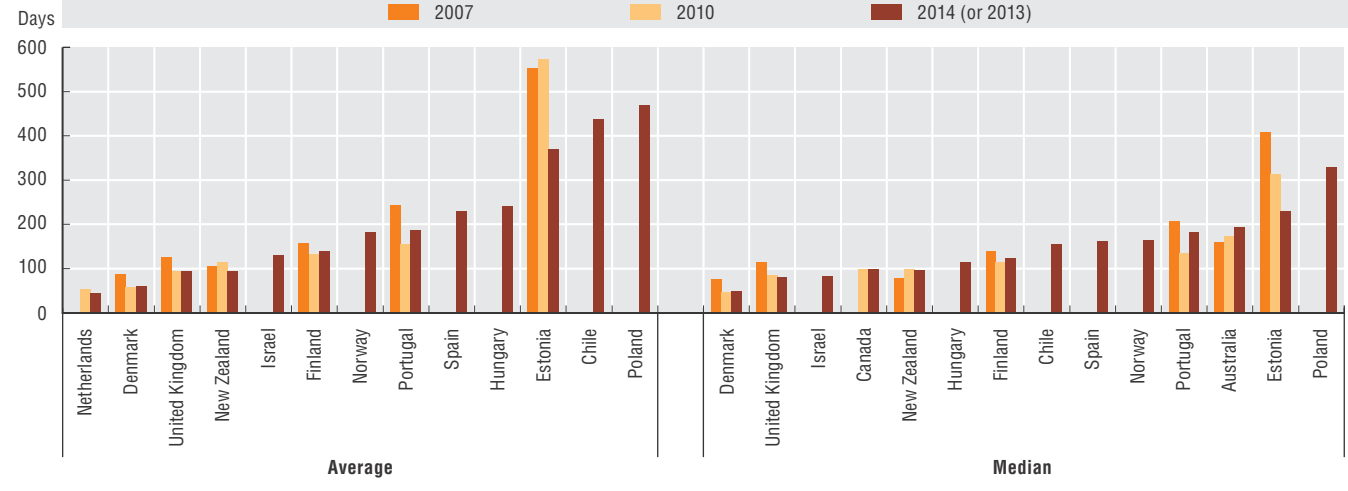
7.12. Hip replacement, waiting times from specialist assessment to treatment, 2007 to 2014 (or 2013)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281097

7.13. Knee replacement, waiting times from specialist assessment to treatment, 2007 to 2014 (or 2013)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281097

Information on data for Israel: *http://oe.cd/israel-disclaimer*

8. QUALITY OF CARE

Avoidable hospital admissions

Diabetes care

Prescribing in primary care

Mortality following acute myocardial infarction (AMI)

Mortality following stroke

Waiting times for hip fracture surgery

Surgical complications

Obstetric trauma

Care for people with mental health disorders

Screening, survival and mortality for cervical cancer

Screening, survival and mortality for breast cancer

Survival and mortality for colorectal cancer

Childhood vaccination programme

Influenza vaccination for older people

Patient experience with ambulatory care

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Avoidable hospital admissions

Most health systems have developed a "primary level" of care whose functions include health promotion and disease prevention, managing new health complaints, as well as long-term conditions and referring patients to hospital-based services when appropriate. A key aim is to keep people well, by providing a consistent point of care over the longer-term, tailoring and co-ordinating care for those with multiple health care needs and supporting the patient in self-education and self-management.

Asthma, chronic obstructive pulmonary disease (COPD) and congestive heart failure (CHF) are three widely prevalent long-term conditions. Both asthma and COPD limit the ability to breathe: asthma symptoms are usually intermittent and reversible with treatment, whilst COPD is a progressive disease that almost exclusively affects current or prior smokers. Asthma affects an estimated 235 million people worldwide (WHO, 2013). More than 3 million people died of COPD in 2012, which is equal to 6% of all deaths globally that year (WHO, 2015). CHF is a serious medical condition in which the heart is unable to pump enough blood to meet the body's needs. CHF is often caused by hypertension, diabetes or coronary heart disease. Heart failure is estimated to affect over 26 million people worldwide resulting in more than 1 million hospitalisations annually in both the United States and Europe.

Common to all three conditions is the fact that the evidence base for effective treatment is well established and much of it can be delivered at a primary care level. A high-performing primary care system can reduce acute deterioration in people living with asthma, COPD or CHF and prevent their admission to hospital.

Figure 8.1 shows hospital admission rates for asthma and COPD together, given the physiological relationship between the two conditions. Admission rates for asthma vary 11-fold across countries with Italy, Switzerland and Mexico reporting the lowest rates and Korea, United States and the Slovak Republic reporting rates over twice the OECD average. International variation in admissions for COPD is 17-fold across OECD countries, with Japan and Italy reporting the lowest rates and Hungary and Ireland the highest rates. Combined, there is a lower 8-fold variation across countries for the two respiratory conditions. Hospital admission rates for CHF vary 7-fold, as shown in Figure 8.2. Mexico, United Kingdom and Korea have the lowest rates, while the Slovak Republic, Hungary and Poland report rates at least 1.8 times the OECD average.

The majority of countries report a reduction in admission rates for CHF over recent years. This may represent an improvement in the quality of primary care. The approaches countries are taking to improve the quality of primary care have been described in a series of country reviews undertaken by OECD. Israel's *Quality Indicators for Community Health Care program* provides an example of how publicly reported information on care is used to incentivise providers to develop better services (OECD, 2012).

Definition and comparability

The indicators are defined as the number of hospital admissions with a primary diagnosis of asthma, COPD and CHF among people aged 15 years and over per 100 000 population. Rates were age-sex standardised to the 2010 OECD population aged 15 and over.

Disease prevalence may explain some, not all, variations in cross-country rates. Differences in coding practices among countries and the definition of an admission may also affect the comparability of data. For example, while the transfer of patients from one hospital to another is required to be excluded from the calculations to avoid "double counting", this cannot be fully complied with by some countries. There is also a risk that countries that do not have the capacity to track patients through the system do not identify all relevant admissions due to changes in diagnosis coding on transfer between hospitals. The impact of excluding admissions where death occurred has been investigated, given these admissions are less likely to be avoidable. The results reveal that while the impact on the indicator rate varies across conditions (e.g. on average, reduced asthma rates by less than 1% whereas for CHF it was nearly 9%), the changes in the variation of rates across countries for each condition was minimal.

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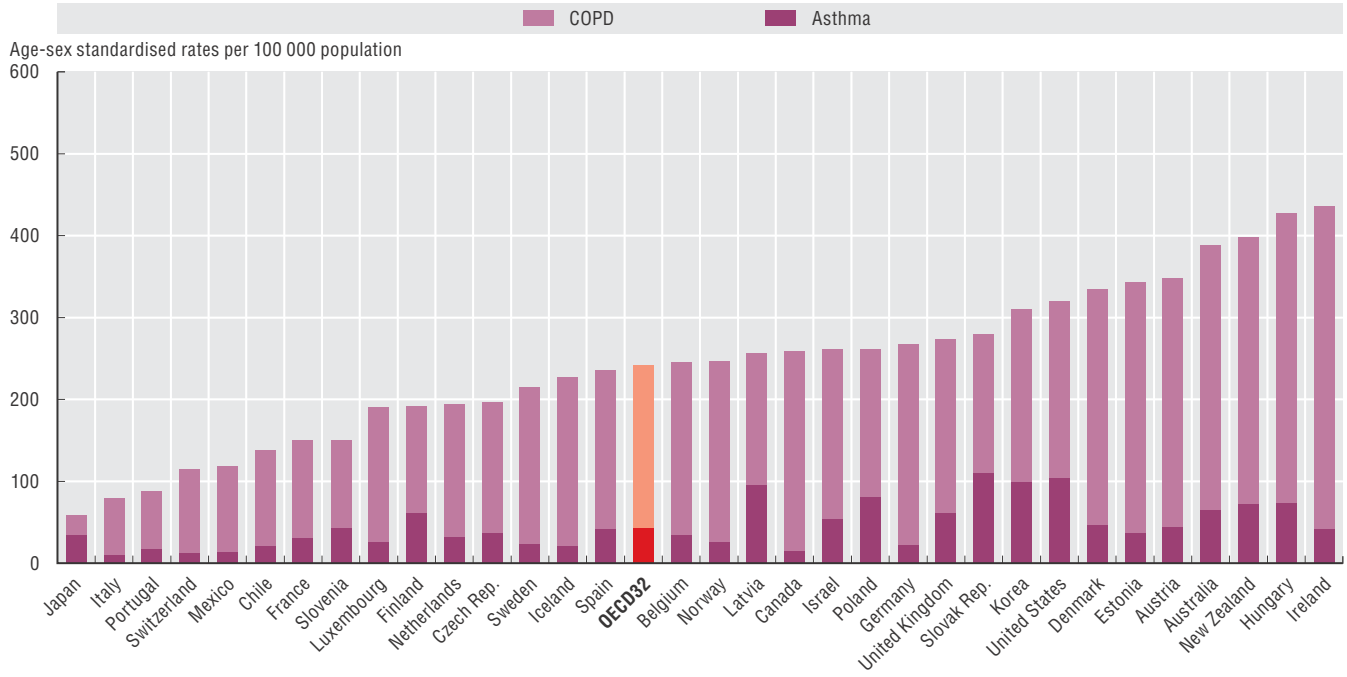
WHO (2013), "Asthma", *Fact Sheet No. 307*, *www.who.int/mediacentre/factsheets/fs307/en/*.

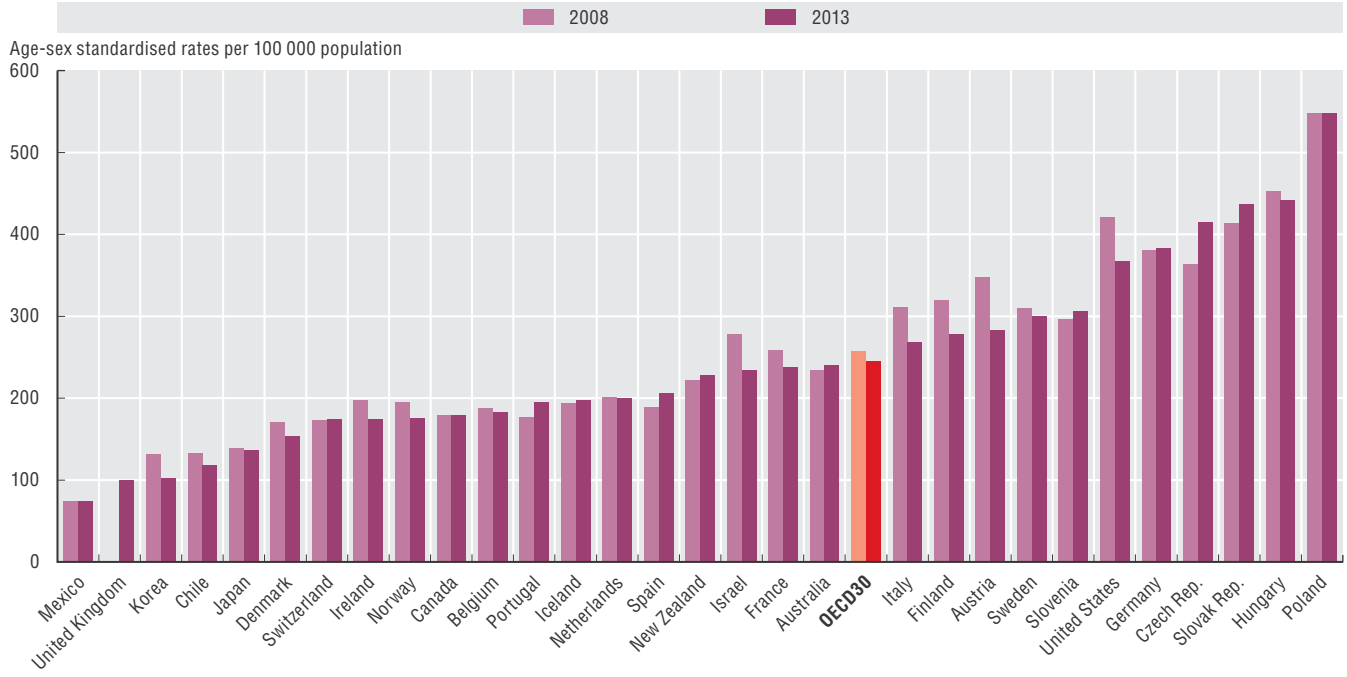
8.1. Asthma and COPD hospital admission in adults, 2013 (or nearest year)



Note: Three-year average for Iceland and Luxembourg.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281105

8.2. Congestive heart failure hospital admission in adults, 2008 and 2013 (or nearest years)



Note: Three-year average for Iceland.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281105

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Diabetes care

Diabetes is a chronic disease that occurs when the body's ability to regulate excessive glucose levels in the blood is lost. Across the OECD countries, diabetes is a leading cause of cardiovascular disease, blindness, kidney failure, and lower limb amputation. Globally it is estimated that over 380 million people had diabetes in 2014 and by 2035 it is projected that close to 600 million people will have the condition. Diabetes caused close to 5 million deaths in 2014 (IDF, 2014). Many countries have established comprehensive approaches to diabetes care, but there are indications that more can be done to prevent the disease (OECD, 2014). Cholesterol-lowering drugs and medications to reduce blood pressure are recommended in most national guidelines for the care of diabetes patients (see indicator "Prescribing in primary care" in Chapter 8)

Poor control of the level of glucose in the blood over the short term can lead to vomiting, dehydration and even cause coma, whereas sustained high levels of blood glucose over a number of years can result in serious diseases with ongoing consequences for a person's health and wellbeing. For example, diabetes can cause nerve damage and poor blood circulation over time. These problems make the feet vulnerable to skin ulcers that can deteriorate quickly and be difficult to treat. An ulcer that does not heal can cause severe damage to tissues and bone over time and can eventually require amputation of a toe, foot or part of a leg. Proper diabetes management and careful foot care can prevent foot ulcers. Ongoing management of diabetes usually involves a considerable amount of self-care, and therefore, advice and education are central to the primary care of people with diabetes. Effective control of blood glucose levels through routine monitoring, dietary modification and regular exercise can reduce the onset of serious complications and the need for hospitalisation.

Figure 8.3 shows the avoidable hospital admissions for diabetes. The international variation in the rates is nearly 8-fold, with Italy, Switzerland and Spain reporting the lowest rates and Austria, Korea and Mexico reporting rates at least two times that of the OECD average. Prevalence of diabetes may explain some of the variation in diabetes admission rates. A positive relationship can be demonstrated between hospital admissions for the general population and diabetes-related hospital admissions, providing some indication that overall access to hospital care can also play a role in explaining the level of hospital care among the diabetic population (OECD, 2015).

Hospital admissions for major lower extremity amputation (i.e. surgical removal of lower limb, including leg or foot) reflect the long-term quality of diabetes care. Figure 8.4 shows the rates of major lower extremity amputation in adults with diabetes. In the left panel the rates based on the general population are presented. The international variation in rates is over 14-fold, with Korea and Italy reporting rates lower than 3 per 100 000 general population and Israel, Slovenia and Portugal reporting rates above 10. Rates based on the estimated diabetic population are presented in the right panel. The rates based on the diabetic population are on average 9-fold higher than for the general population and display differences in the ranking of countries, providing an indication that differences in disease prevalence across countries may explain some, but not all, cross-country variation.

Definition and comparability

The indicator for diabetes hospital admission is defined as the number of hospital admissions with a primary diagnosis of diabetes among people aged 15 years and over per 100 000 population. The indicator for major lower extremity amputation in adults with diabetes is defined as the number of discharges of people aged 15 years and over per 100 000 population, for the general population and the estimated diabetic population. Rates for both indicators were age-sex standardised to the 2010 OECD population aged 15 and over.

Differences in data definition and coding practices between countries may affect the comparability of data. For example, coding of diabetes as a principal diagnosis versus a secondary diagnosis varies across countries. This is more pronounced for diabetes than other conditions, given that in many cases admission is for the secondary complications of diabetes rather than diabetes itself. Diabetes population estimates used to calculate amputation indicator rates were self-reported by countries. Subject to further data development, the use of diabetes population estimates to standardise the indicator rates will be considered in the future.

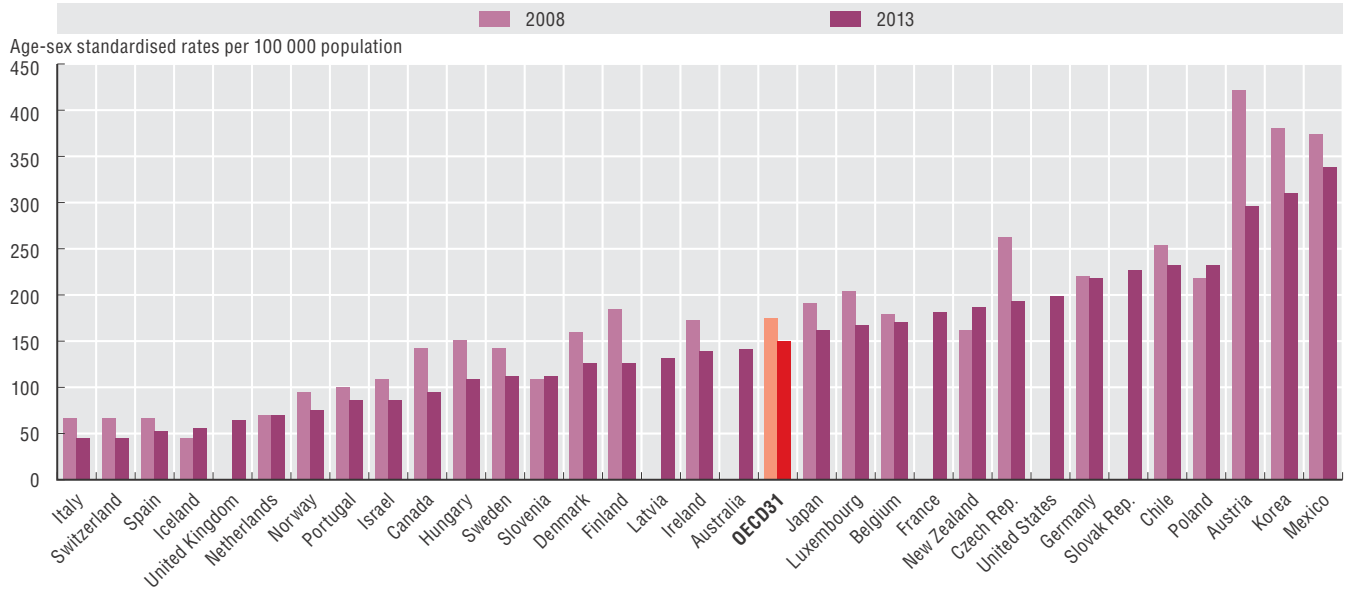
References

International Diabetes Federation (2014), *IDF Diabetes Atlas Sixth Edition Update 2014*, *https://www.idf.org/sites/default/files/EN_6E_Atlas_Full_0.pdf*.

OECD (2015), *Cardiovascular Disease and Diabetes: Policies for Better Health and Quality of Care*, OECD Health Policy Studies, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264233010-en*.

OECD (2014), *OECD Reviews of Health Care Quality: Czech Republic 2014: Raising Standards*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264208605-en*.

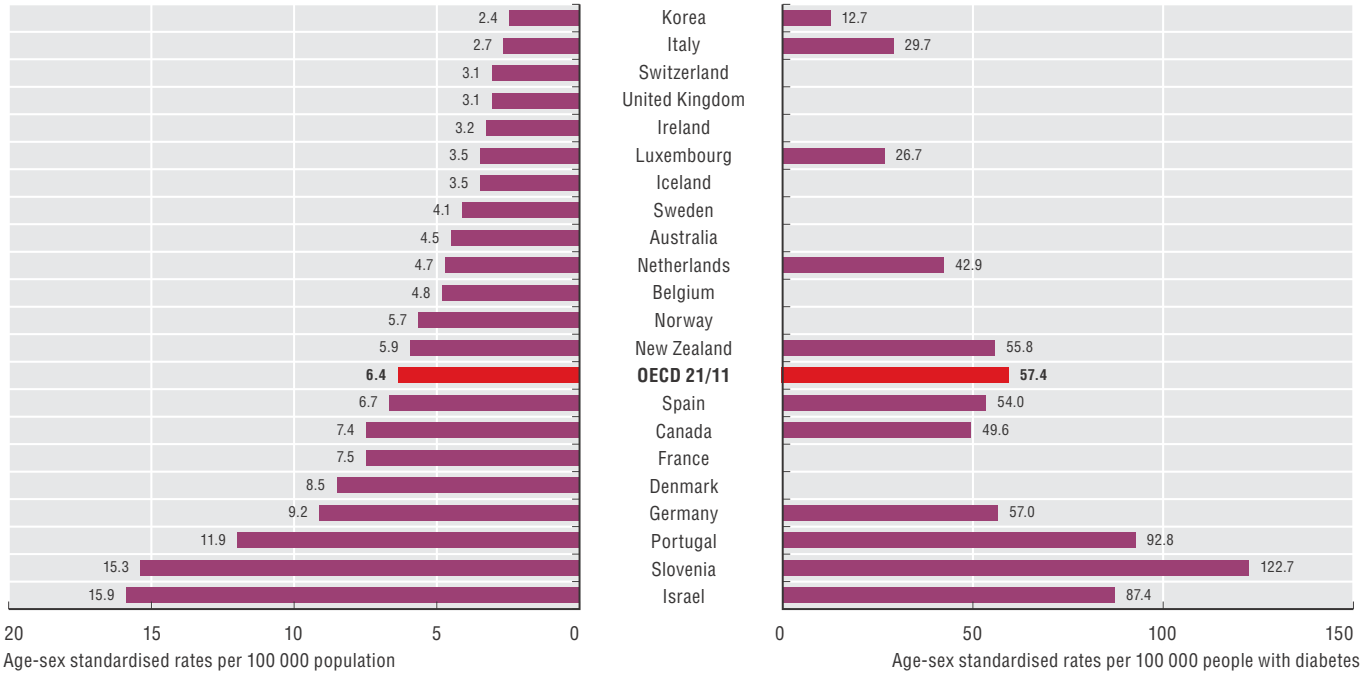
8.3. Diabetes hospital admission in adults, 2008 and 2013 (or nearest years)



Note: Three-year average for Iceland and Luxembourg.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281111

8.4. Major lower extremity amputation in adults with diabetes, 2013 (or nearest year)



Note: Three-year average for Iceland and Luxembourg.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281111

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Prescribing in primary care

Beyond consumption and expenditure information (see Chapter 10), prescribing can be used as an indicator of health care quality. Antibiotics, for example, should be prescribed only where there is an evidence-based need, to reduce the risk of resistant strains. Likewise, quinolones and cephalosporins are considered second-line antibiotics in most prescribing guidelines. Their use should be restricted to ensure availability of effective second-line therapy should first-line antibiotics fail. Total volume of antibiotics prescribed, and second-line as a proportion of total volume, have been validated as markers of quality in the primary care setting. In May 2015, the World Health Assembly endorsed a global action plan to tackle antimicrobial resistance (*http://who.int/drugresistance/global_action_plan*), which is also reflected in several national strategies.

Figure 8.5 shows volume of all antibiotics prescribed in primary care, with volumes of second- line antibiotics embedded within the total amount. Total volumes vary more than four-fold across countries, with Chile, the Netherlands and Estonia reporting the lowest volumes, and Turkey and Greece reporting volumes much higher than the OECD average. Volumes of second-line antibiotics vary almost 16-fold across countries. The Nordic countries, the Netherlands and the United Kingdom report the lowest volumes of these antibiotics, and Korea, the Slovak Republic and Greece the highest. Variation is likely to be explained, on the supply side, by differences in the regulation, guidelines and incentives that govern primary care prescribers and, on the demand side, by cultural differences in attitudes and expectations regarding the natural history and optimal treatment of infective illness.

In conjunction with additional indicators of the quality of primary care for diabetes (see "Diabetes care"), *Health at a Glance* is for the first time reporting two indicators related to the quality of prescribing in primary care for diabetic patients. In diabetic individuals with hypertension, angiotensin-converting enzyme inhibitors (ACE-I) or angiotensin receptor blockers (ARB) are recommended in most national guidelines as first-line medications to reduce blood pressure, since they are most effective at reducing the risk of cardiovascular disease and renal disease. Figures 8.6 and 8.7 suggest there is wide variability across countries in prescribing practices for diabetes patients, with 27% of diabetic patients in the Slovak Republic given prescriptions for cholesterol-lowering medication, compared with 81% in New Zealand. There is greater consistency in the proportion of diabetic patients on antihypertensive agents with at least one prescription for ACE-I or ARB, with the exception of the Slovak Republic.

Benzodiazepines are often prescribed for elderly patients for anxiety and sleep disorders, despite the risk of adverse side effects such as fatigue, dizziness and confusion. A meta-analysis suggests that the use of benzodiazepines in elderly people is associated with more than double the risk of developing such adverse effects compared with placebo (Sithamparanathan et al., 2012). Figures 8.8 and 8.9 indicate that, across the OECD, on average around 29 per 1 000 elderly patients receive long-term prescriptions for benzodiazepines and related drugs (365 defined daily doses in one year), and 62 per 1 000 have received at least one prescription for a long-acting benzodiazepine or related drugs within the year.

To reduce the potentially harmful overuse and misuse of medicines, diagnostic tests and procedures, the *Choosing Wisely* campaign was launched in 2012. Increasingly international, the campaign comprises evidence-based information for clinicians and patients on when medications and procedures may be inappropriate. Appropriate use of antibiotics and benzodiazepines is addressed (*www.choosingwisely.org*).

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 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*.

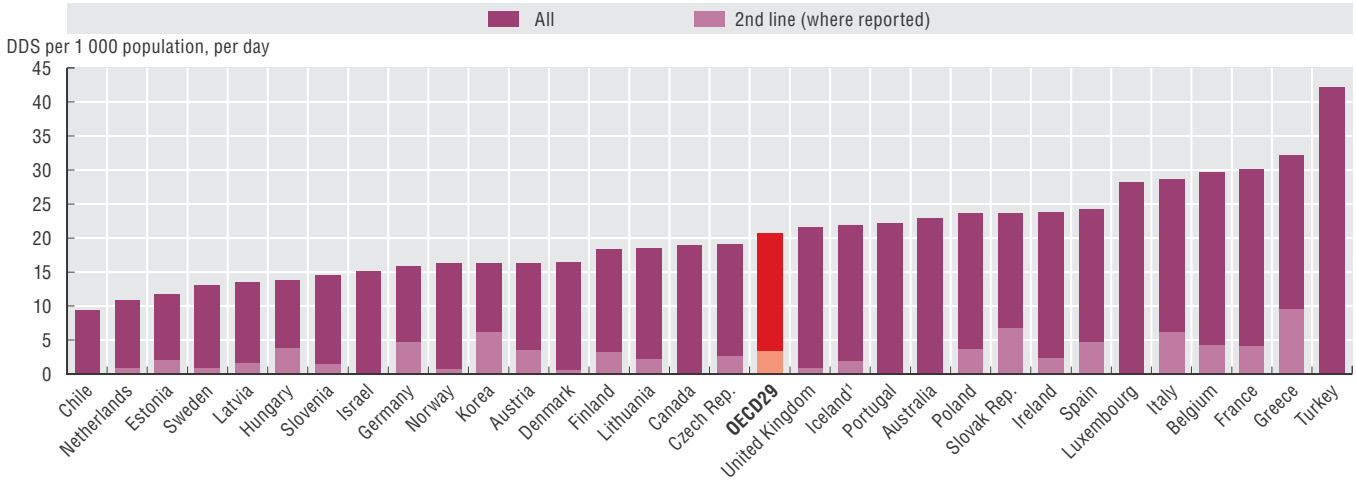
In Figure 8.5, data for Chile include over the counter (OTC) drugs. Data for Canada, Israel and Luxembourg exclude drugs prescribed in hospitals, non-reimbursed drugs and OTC drugs. Data for Iceland refer to all sectors, not just primary care. Data for Portugal include OTC and non-reimbursed drugs. Data for Australia include non-reimbursed drugs. Data for Turkey refer to outpatient health care.

Denominators comprise the population held in the national prescribing database, rather than the general population (with the exception of Belgian data on benzodiazepines, which comes from a national health survey).

References

Sithamparanathan, K., A. Sadera and L. Leung (2012), "Adverse Effects of Benzodiazepine Use in Elderly People: A Meta-analysis", *Asian Journal of Gerontology & Geriatrics*, Vol. 7, No. 2, pp. 107-111.

8.5. Overall volume of antibiotics prescribed, 2013 (or nearest year)

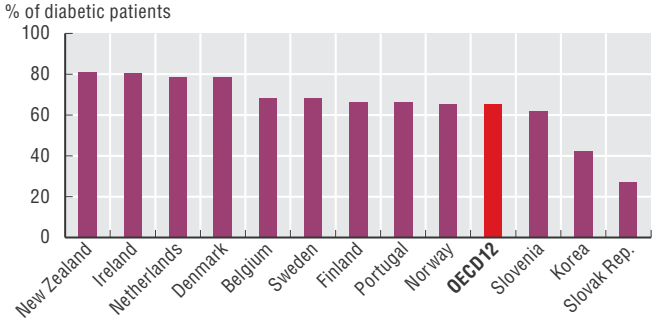


1. Data refer to all sectors (not only primary care).

Source: European Centre for Disease Prevention and *OECD Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281125

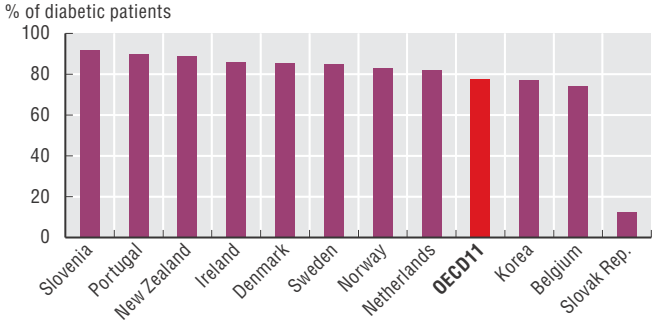
8.6. People with diabetes with a prescription of cholesterol lowering medication in the past year, 2013 (or nearest year)



Source: OECD *Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281125

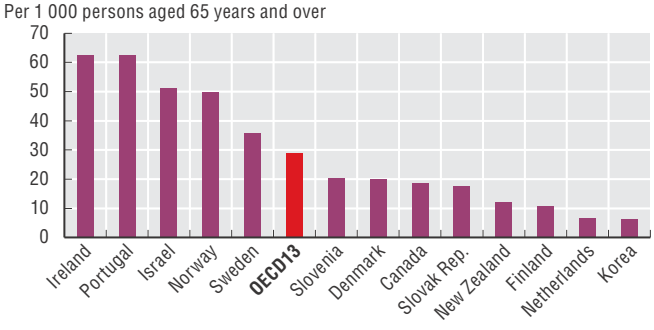
8.7. People with diabetes with a prescription of recommended antihypertensive medication in the past year, 2013 (or nearest year)



Source: OECD *Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281125

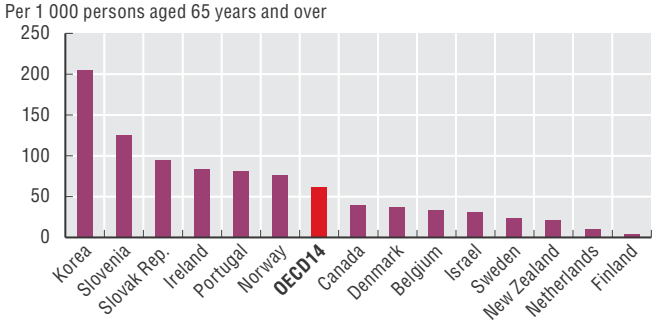
8.8. Elderly people prescribed long-term benzodiazepines or related drugs, 2013 (or nearest year)



Source: OECD *Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281125

8.9. Elderly people prescribed long-acting benzodiazepines or related drugs, 2013 (or nearest year)



Source: OECD *Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281125

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Mortality following acute myocardial infarction (AMI)

Mortality due to coronary heart disease has declined substantially since the 1970s (see indicator "Mortality from cardiovascular diseases" in Chapter 3). Advances in the prevention such as smoking (see indicator "Tobacco consumption among adults" in Chapter 4) and treatment of cardiovascular diseases outpaced those of many other diseases (OECD, 2015a).

A good indicator of acute care quality is the 30-day AMI case-fatality rate. This measure reflects the processes of care, such as timely transport of patients and effective medical interventions. The indicator is influenced by not only the quality of care provided in hospitals but also differences in hospital transfers, average length of stay and AMI severity.

Figure 8.10 shows the case-fatality rates within 30 days of admission for AMI when the death occurs in the same hospital as the initial AMI admission. The lowest rate is found in Australia at 4.1% and the highest rate is in Mexico at 28.2%, suggesting AMI patients do not always receive recommended care. In Mexico, the quality of pre-hospital emergency medical services is reportedly poor (Peralta, 2006), and the high rates of uncontrolled diabetes may also be a contributing factor in explaining the high AMI case-fatality rates (see indicator "Diabetes care" in Chapter 8) as patients with diabetes have worse outcomes after AMI compared to those without diabetes, particularly if the diabetes is poorly controlled. In Japan, people are less likely to die of heart disease overall, but are more likely to die once admitted into hospital for AMI compared to other OECD countries. One possible explanation is that the severity of patients admitted to hospital with AMI may be more advanced among a smaller group of people across the population, but could also reflect underlying differences in emergency care, diagnosis and treatment patterns (OECD, 2015b).

Figure 8.11 shows 30-day case fatality rates where fatalities are recorded regardless of where they occur. This is a more robust indicator because it records deaths more widely than the same-hospital indicator, but it requires a unique patient identifier and linked data which is not available in all countries. The AMI case-fatality rate ranges from 7.1% in Canada to 18.8% in Hungary and 19.1% in Latvia.

Case-fatality rates for AMI have decreased substantially between 2003 and 2013 (Figures 8.10 and 8.11). Across the OECD, case fatalities fell from 11.2% to 8.0% when considering same hospital deaths and from 14.3% to 9.5% when considering deaths occurred in and out of hospital. The rate of decline was particularly striking in the Slovak Republic, the Netherlands and Australia for the first indicator and in Finland and Poland for the second indicator, with more than 6% annual average reduction per year compared to an OECD average of respectively 3 and 4 %. Better access to high-quality acute care for heart attack, including timely transportation of patients, evidence-based medical interventions and high-quality specialised health facilities such as percutaneous catheter intervention-capable centres have helped to reduce 30-day case-fatality rates (OECD, 2015a). For example, Korea had higher case-fatality rates for AMI but in 2006 it has implemented a Comprehensive Plan for CVD, encompassing prevention, primary care and acute CVD care (OECD, 2012). Under the Plan, specialised services were enhanced through a creation of regional cardio and cerebrovascular centres throughout the country, and average waiting time from emergency room arrival to initiation of catheterisation fell from 72.3 in 2010 to 65.8 minutes in 2011, leading to a reduction in case-fatality (OECD, 2015a).

Definition and comparability

The case-fatality rate measures the percentage of people aged 45 and over who die within 30 days following admission to hospital for a specific acute condition. Rates based on admission data refer to the death occurred in the same hospital as the initial admission. Admissions resulting in a transfer were excluded for all countries except Australia, Belgium, Denmark, Hungary, Ireland, Israel, Japan, Luxembourg, Mexico, Netherlands, Slovak Republic and Sweden. This exclusion generally increases the rate compared with those countries which do not exclude these transfers. Rates based on patient data refer to the death occurred in the same hospital, a different hospital, or out of hospital.

Rates are age-sex standardised to the 2010 OECD population aged 45+ admitted to hospital for a specific acute condition such as AMI and ischemic stroke.

References

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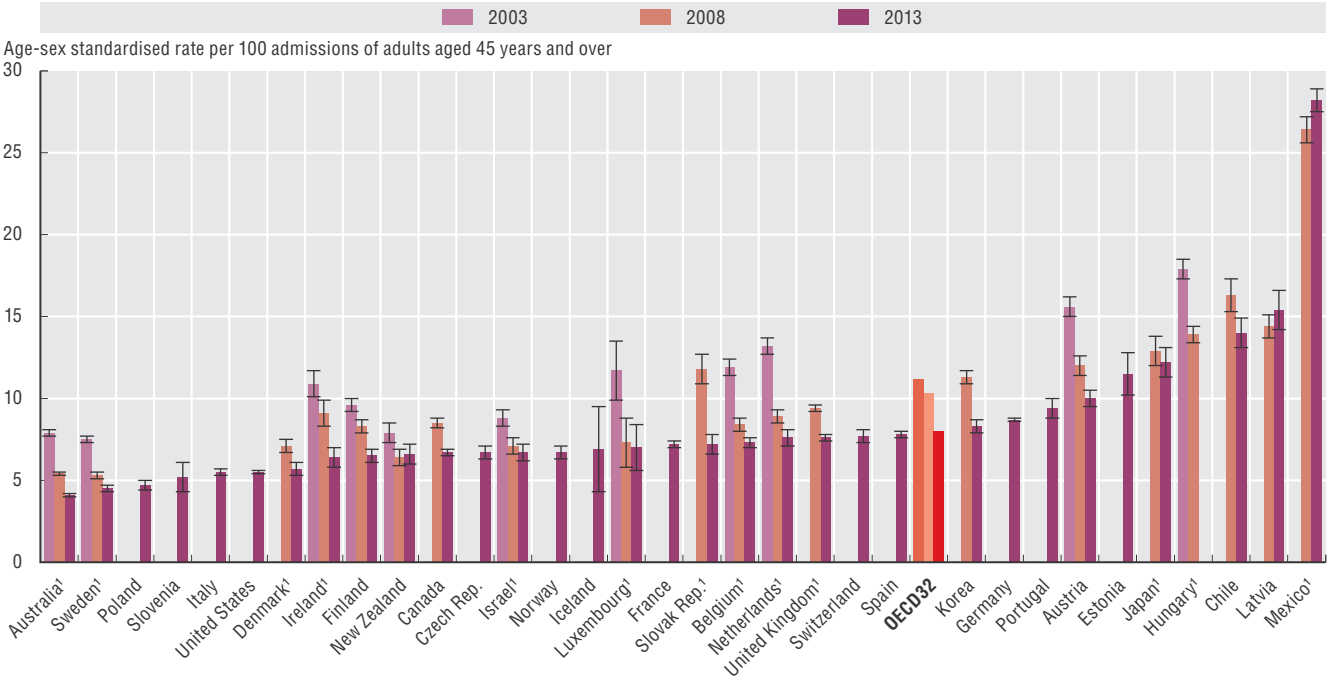
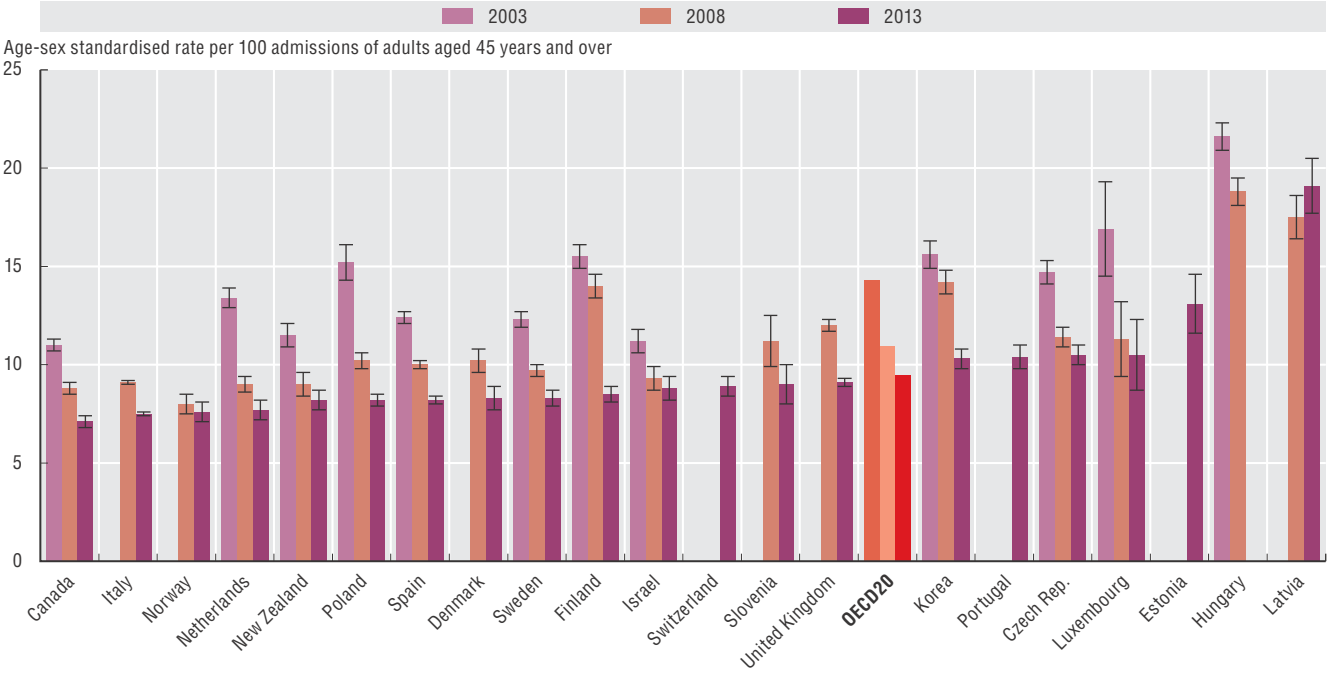
8.10. Thirty-day mortality after admission to hospital for AMI based on admission data, 2003 to 2013 (or nearest years)



Note: 95% confidence intervals represented by H. Three-year average for Iceland and Luxembourg.
1. Admissions resulting in a transfer are included.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281135

8.11. Thirty-day mortality after admission to hospital for AMI based on patient data, 2003 to 2013 (or nearest years)



Note: 95% confidence intervals represented by H. Three-year average for Luxembourg.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281135

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Mortality following stroke

Stroke and other cerebrovascular diseases accounted for around 7% of all deaths in OECD countries in 2013. Ischemic stroke represented around 85% of all cerebrovascular disease cases. It occurs when the blood supply to a part of the brain is interrupted, leading to a necrosis (i.e. the cells that die) of the affected part. Treatment for ischemic stroke has advanced dramatically over the last decade. Clinical trials have demonstrated clear benefits of thrombolytic treatment for ischemic stroke as well as receiving care in dedicated stroke units to facilitate timely and aggressive diagnosis and therapy for stroke victims (Hacke et al., 1995; Seenan et al., 2007).

Figure 8.12 shows the case-fatality rates within 30 days of admission for ischemic stroke when the death occurred in the same hospital as the initial stroke admission. Figure 8.13 shows the case-fatality rate where deaths are recorded regardless of where they occurred. This indicator is more robust because it captures fatalities more comprehensively. Although more countries can report the more partial same-hospital measure, an increasing number of countries are investing in their data infrastructure and are able to provide more comprehensive measures.

Across OECD countries 8.4% of patients in 2013 died within 30 days in the same hospital in which the initial admission for ischemic stroke occurred (Figure 8.12). The case-fatality rates were highest in Mexico (19.5%) and Latvia (18.4%). Rates were less than 5% in Japan, Korea and the United States. With the exception of Japan and Korea, countries that achieve better results for ischemic stroke also tend to report good case-fatality rates for acute myocardial infarction (AMI). This suggests that certain aspects of acute care may be influencing outcomes for both stroke and AMI patients. By contrast, Japan reports the lowest rates for ischemic stroke but high case-fatality rates for AMI. This somewhat paradoxical result requires further investigation but may be associated with the severity of disease in the country that is not captured in the data (see indicator "Mortality following acute myocardial infarction" in Chapter 8 for more details).

Across the 19 countries that reported in- and out-of-hospital case-fatality rates, 10.1% of patients died within 30-days of being admitted to hospital for stroke (Figure 8.13). This figure is higher than the same-hospital based indicator because it captures deaths that occur not just in the same hospital but also in other hospitals and out-of-hospital.

Between 2003 and 2013, case-fatality rates for ischemic stroke have decreased substantially (Figures 8.12 and 8.13). Across the OECD, case fatalities fell from 10.2% to 8.4% when considering same hospital rates and from 12.7% to 10.1% when considering in- and out-of-hospital rates. The United Kingdom and the Netherlands for the first indicator and the United Kingdom, Estonia and Finland for the second indicator were able to reduce their rates by an average annual reduction of more than 6% compared to an OECD average of respectively 2 and 2.5%. Better access to high-quality stroke care, including timely transportation of patients, evidence-based medical interventions and high-quality specialised facilities such as stroke units have helped to reduce 30-day case-fatality rates (OECD, 2015).

Despite the progress seen so far, there is still room to improve implementation of best practice acute care for cardiovascular diseases including stroke across countries. To shorten acute care treatment time, targeted strategies can be highly effective. But to encourage the use of evidence-based advanced technologies in acute care, wider approaches are needed. Adequate funding and trained professionals should be made available, and health care delivery systems should be adjusted to enable easy access (OECD, 2015).

Definition and comparability

Case-fatality rates are defined in indicator "Mortality following acute myocardial infarction" in Chapter 8.

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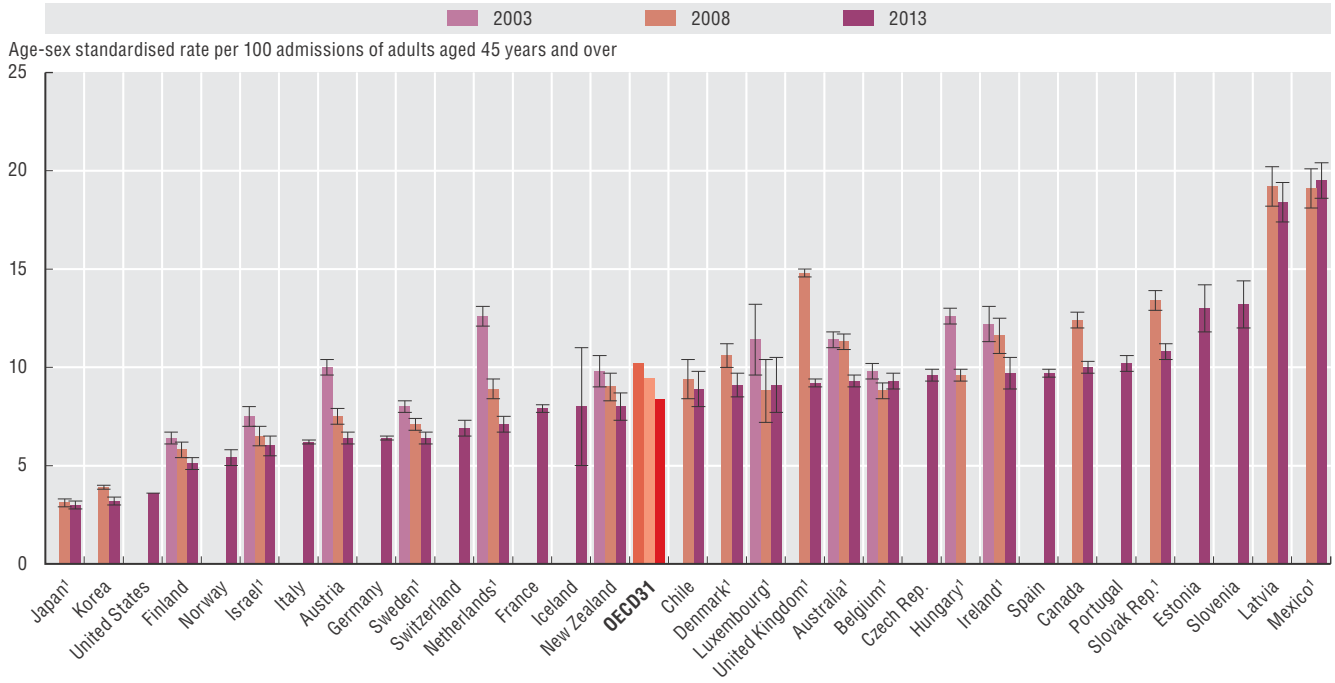
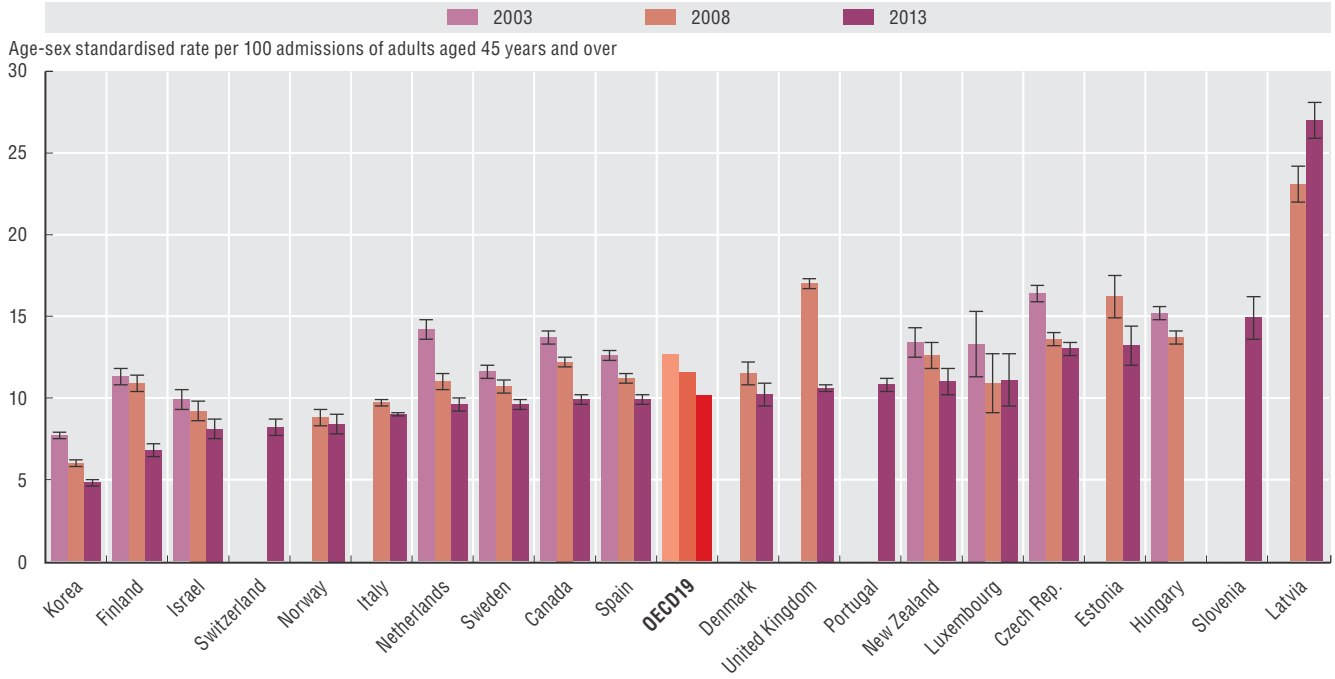
8.12. Thirty-day mortality after admission to hospital for ischemic stroke based on admission data, 2003 to 2013 (or nearest years)



Note: 95% confidence intervals represented by H. Three-year average for Iceland and Luxembourg.
1. Admissions resulting in a transfer are included.
Source: *OECD Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281146

8.13. Thirty-day mortality after admission to hospital for ischemic stroke based on patient data, 2003 to 2013 (or nearest years)



Note: 95% confidence intervals represented by H. Three-year average for Luxembourg.
Source: *OECD Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933281146

Waiting times for hip fracture surgery

The main risk factors for hip fracture are associated with ageing – an increased risk of falling and loss of skeletal strength from osteoporosis. With increasing life expectancy across most OECD countries, it is anticipated that hip fracture will become a more significant public health issue in coming years.

In most instances following hip fracture, surgical intervention is required to repair or replace the hip joint. There is general consensus that early surgical intervention maximises patient outcomes and minimises the risk of complications. General agreement is that surgery should occur within two days (48 hours) of hospitalisation. Guidelines in some countries call for even earlier intervention. For example, the National Institute for Health and Care Excellence (NICE) clinical guidelines recommend hip fracture surgery to be performed on the day of hospital admission or the next day (National Institute for Health and Care Excellence, 2014).

This is the first time *Health at a Glance* is reporting on the time taken to initiate hip fracture surgery after hospital admission. Timely surgery can be considered an indicator of the quality of acute care received by patients with hip fracture.

In 2013, on average across the OECD over 80% of patients admitted for hip fracture underwent surgery within two days (Figure 8.14). In Denmark, Iceland and the Netherlands, the proportion was greater than 95%. Countries with the lowest proportion of patients operated on within two days of admission were Spain (43%), Italy (45%) and Portugal (45%). Many patients were treated sooner than two days following admission. In the Netherlands and the Czech Republic, for example, over 40% of patients admitted for hip fracture underwent surgery on the day of admission.

Figure 8.15 shows the proportion of hip-fracture repairs occurring within two days of admission in OECD countries between 2003 and 2013. The OECD average increased from 76% to 81% over that time. The greatest improvement was observed in Italy, where the proportion increased from 28% in 2008 to 45% in 2013, and in Israel, where it increased from 70% in 2003 to 85% in 2013. A policy of comparative public reporting of hospital indicators, including time to surgery following hip fracture, implemented by Italian authorities may partly explain the improvement observed in that country. In Canada, the percentage of patients operated on within the two day benchmark increased from 87% in 2008 to 92% in 2013, but there is considerable variation in this indicator between provinces and hospitals (CIHI, 2015). Portugal saw a decline of hip fracture repair within two days of admission from 57% in 2008 to 45% in 2013.

Time to surgery for hip fracture patients is influenced by many factors, including hospitals' surgical theatre capacity, flow and access. Improvement in timely surgery for patients with a particular diagnosis or injury (e.g. hip fracture) may be achieved at the expense of timeliness in others (e.g. hip or knee replacements).

Definition and comparability

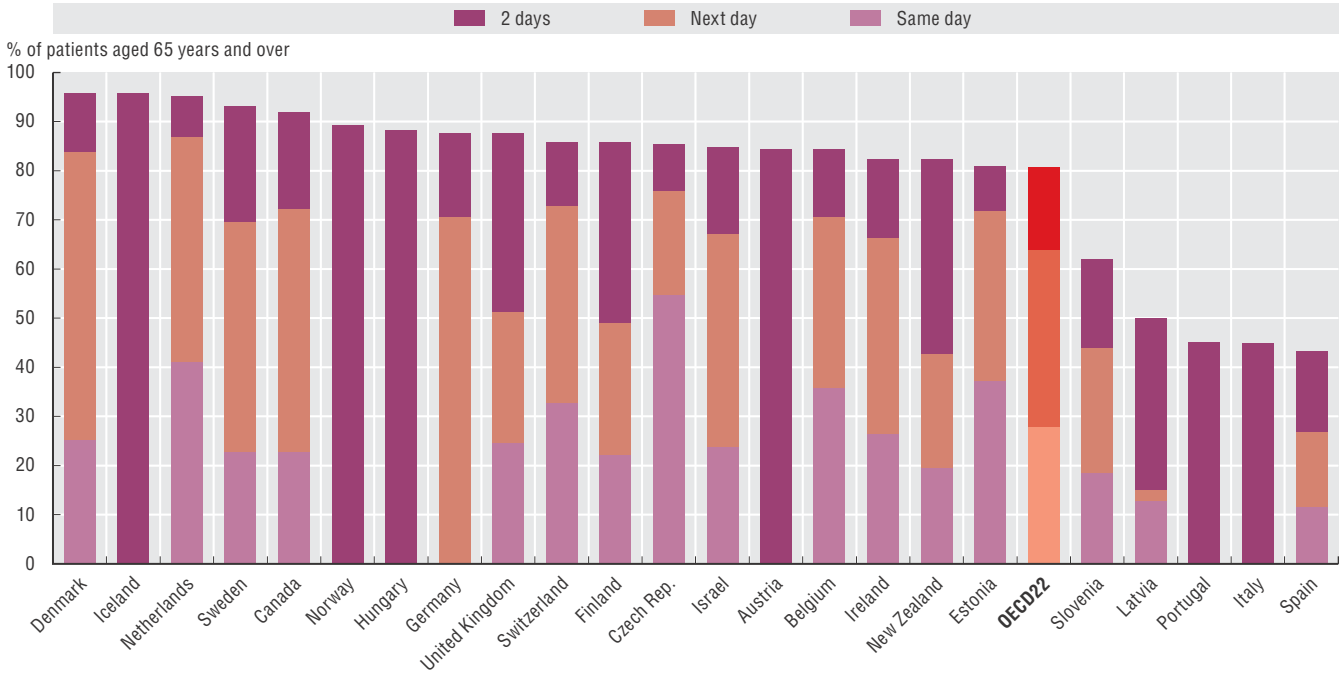
This indicator is defined as the proportion of patients aged 65 years and over admitted to hospital in a specified year with a diagnosis of upper femur fracture, who had surgery initiated within two calendar days of their admission to hospital. Data are also provided for the proportion of those patients who had surgery within one day of their admission to hospital, and for patients who had surgery on the same day as their hospital admission. While the capacity to capture time of admission and surgery in hospital administrative data varies across countries, most countries are able to distinguish between patients who stay overnight and have surgery within 24 hours from patients who have surgery on the day of admission. Some countries supplied results for surgery within two calendar days only.

References

CIHI – Canadian Institute for Health Information (2015), *Wait Times for Priority Procedures in Canada*, Ottawa.

National Institute for Health and Care Excellence (2014), "Hip Fracture: The Management of Hip Fracture in Adults", *NICE Clinical Guideline No. 124*, issued June 2011, last modified March 2014.

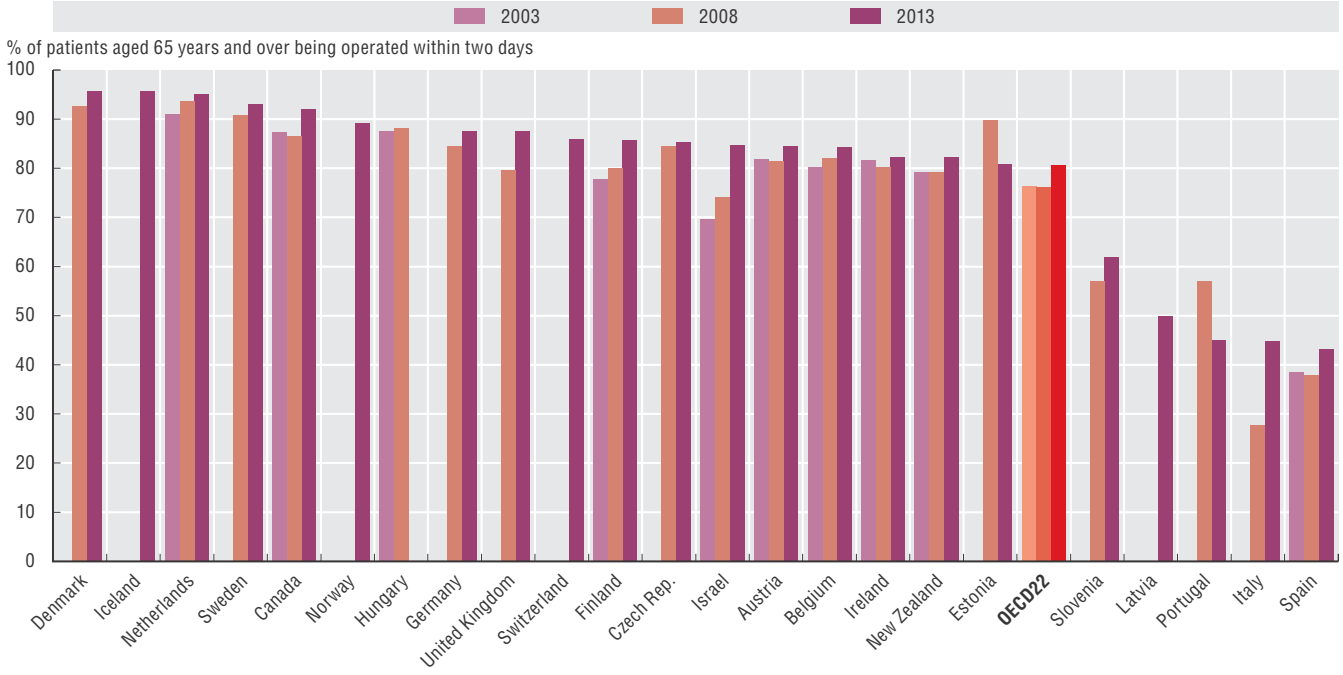
8.14. Hip fracture surgery initiation after admission to hospital, 2013 (or nearest year)



Note: Three-year average for Iceland.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281152

8.15. Hip fracture surgery initiation after admission to hospital, 2003 to 2013 (or nearest years)



Note: Three-year average for Iceland.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281152

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Surgical complications

Patient safety remains one of the most prominent issues in health policy and public debate. High rates of error during the delivery of medical care have been demonstrated repeatedly, including the landmark report by the Institute of Medicine which estimated that more people die from medical errors than from traffic injuries or breast cancer (Kohn et al., 2000). Robust comparison of performance with peers is fundamental to securing improvement. Two types of patient safety event can be distinguished for this purpose: never events, those events that should never occur, such as failure to remove surgical foreign bodies at the end of a procedure; and *adverse* events, such as post-operative sepsis, which can not be avoided in all cases given the high-risk nature of some procedures, although increased incidence at an aggregate level may indicate a systemic problem.

Figure 8.16 shows rates for two related adverse events, pulmonary embolism (PE) or deep vein thrombosis (DVT) after hip or knee replacement surgery. These are high risk procedures most commonly associated with postoperative DVT and PE complications. PE and DVT cause unnecessary pain and in some cases death, but can be prevented by anticoagulants and other measures before, during and after surgery. Figure 8.17 shows rates for another adverse event, sepsis after abdominal surgery. Abdominal surgery is also a high risk procedure. Likewise, sepsis after surgery, which may lead to organ failure and death, can in many cases be prevented by prophylactic antibiotics, sterile surgical techniques and good postoperative care. Figure 8.18 illustrates a never event (events that should never occur), rates of foreign body left in during procedure. The most common risk factors for this never event are emergencies, unplanned changes in procedure, patient obesity and changes in the surgical team; preventive measures include counting instruments, methodical wound exploration and effective communication among the surgical team.

The left panel of Figures 8.16, 8.17 and 8.18. shows the rate of the three respective postoperative complications based on the surgical admission, the hospital admission when the surgery took place. The right panel of these figures shows rates based on the surgical admission and all subsequent re-admissions to hospital within 30 days, whether at the same hospital or in another hospital. The use of a unique patient identifier is required to calculate the indicator rates in the right panel, which is currently not available in some countries.

Caution is needed in interpreting the extent to which these indicators accurately reflect international differences in patient safety rather than differences in the way that countries report, code and calculate rates of adverse events (see "Definition and comparability" box).

Definition and comparability

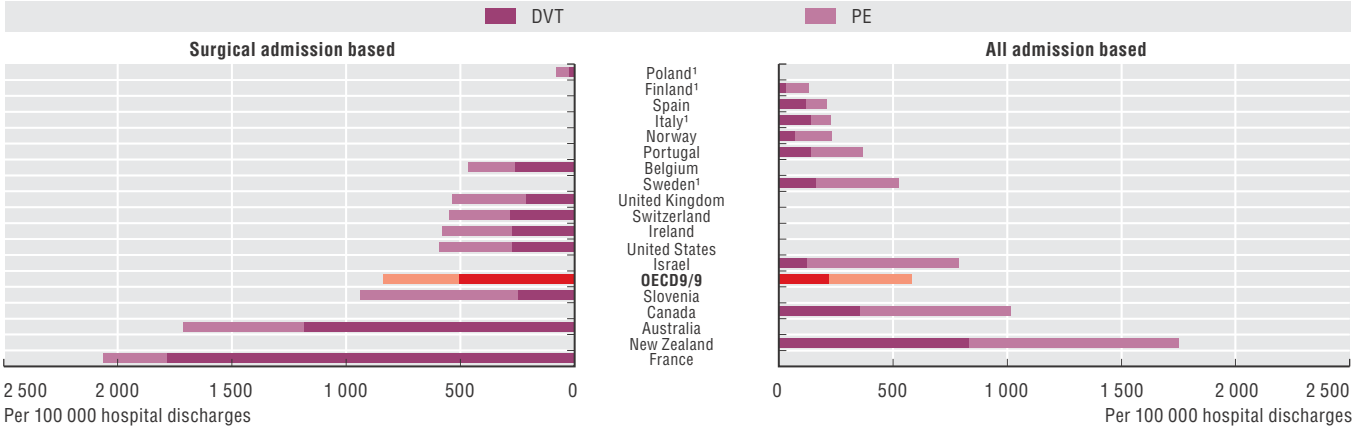
Surgical complications are defined as the number of discharges with ICD codes for complication in any secondary diagnosis field for the "surgical admission" and any diagnosis field for any subsequent related re-admission within 30 days, divided by the total number of discharges for patients aged 15 and older. Contrary to the data presented in *Health at a Glance 2013*, the indicator rates have *not* been adjusted by the average number of secondary diagnoses, given a strong positive correlation between the number of secondary diagnoses and indicator rates reported by countries was not evident in the most recent data.

A fundamental challenge in international comparison of patient safety indicators centres on the quality of the underlying data. Variations in how countries record diagnoses and procedures and define hospital admissions can affect calculation of rates. For example differences in the use of the present on admission flag for diagnosis and disease (e.g. ICD-9-CM and ICD-10-AM) and procedure classification systems are known to affect data comparability. In some cases, higher adverse event rates may signal more developed patient safety monitoring systems and a stronger patient safety culture rather than worse care. Recent analysis of dispersion of postoperative PE or DVT rates across hospitals within OECD countries revealed extremely large variations in reported rates, including implausibly high and low rates for hospitals in the same country even after risk adjustment. Hence, differences in the national rates presented here are likely to reflect differences in coding and recording practices both between and within countries and mask true differences in care quality. There is a need for greater consistency in reporting of patient safety events across countries and significant scope exists for improved data quality within national patient safety programs. Wider analysis of coding comparability will inform future strategies for improvement.

References

Kohn, L.T., J.M. Corrigan and M.S. Donaldson (Editors) (2000), *To Err Is Human: Building a Safer Health System*, Institute of Medicine, National Academy Press, Washington, DC.

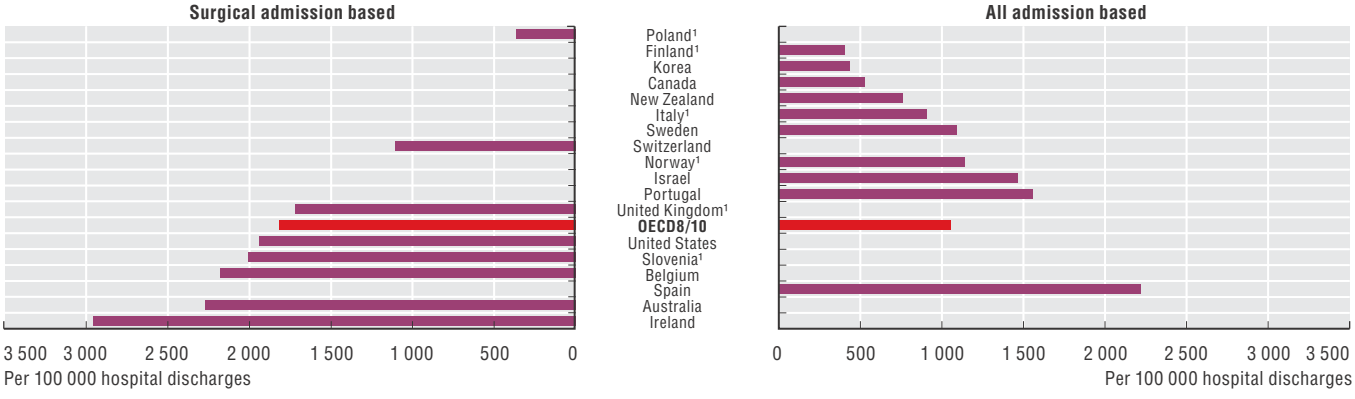
8.16. Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT) in hip and knee surgeries, 2013 (or nearest year)



Note: Rates have not been adjusted by the average number of secondary diagnoses.
1. The average number of secondary diagnoses is < 1.5.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281167

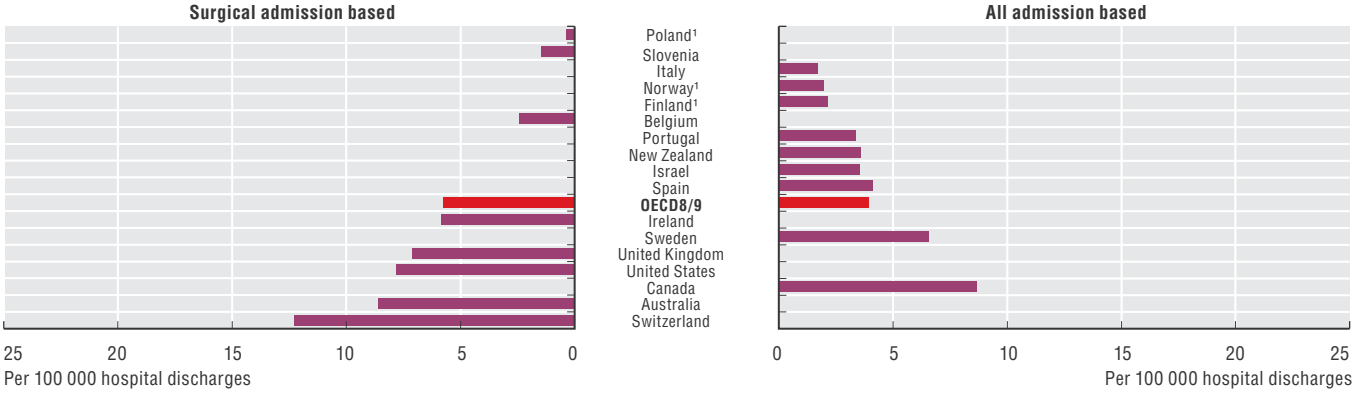
8.17. Postoperative sepsis in abdominal surgeries 2013 (or nearest year)



Note: Rates have not been adjusted by the average number of secondary diagnoses.
1. The average number of secondary diagnoses is < 1.5.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281167

8.18. Foreign body left in during procedure, 2013 (or nearest year)



Note: Rates have not been adjusted by the average number of secondary diagnoses.
1. The average number of secondary diagnoses is < 1.5.
Source: *OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.*

Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933281167

Obstetric trauma

Patient safety during childbirth can be assessed by looking at potentially avoidable tearing of the perineum during vaginal delivery. Tears that extend to the perineal muscles and bowel wall require surgery. They are more likely to occur in the case of first vaginal delivery, high baby birth weight, labour induction, occiput posterior baby position, prolonged second stage of labour and instrumental delivery. Possible complications include continued perineal pain and incontinence.

These types of tears are not possible to prevent in all cases, but can be reduced by employing appropriate labour management and high quality obstetric care. Hence, the proportion of deliveries involving higher degree lacerations is a useful indicator of the quality of obstetric care. Obstetric trauma indicators have been used by the US Joint Commission as well as by different international quality initiatives seeking to assess and improve obstetric care (AHRQ, 2006).

Episiotomy is a surgical incision of the perineum performed to widen the vaginal opening for the delivery of an infant. Wide variation in the use of episiotomy during vaginal deliveries currently exists across Europe, ranging from around 70% of births in Portugal and Poland in 2010 to less than 10% in Sweden, Denmark and Iceland (Euro-Peristat, 2013). The selective use of episiotomy to decrease severe perineal lacerations during delivery is controversial, with claims that there are currently inadequate data to properly evaluate safety and effectiveness considerations (Lappen and Gossett, 2010).

Obstetric trauma indicators are considered relatively reliable and comparable across countries, particularly given they are less sensitive to variations in secondary diagnosis coding practices across countries. Nevertheless, differences in the consistency with which obstetric units report these complications may complicate international comparison. Fear of litigation, for example, may cause underreporting; conversely systems that rely on specially trained administrative staff to identify and code adverse events from patients' clinical records may produce more reliable data.

Obstetric trauma with instrument refers to deliveries using forceps or vacuum extraction. As the risk of a perineal laceration is significantly increased when instruments are used to assist the delivery, rates for this patient population are reported separately. The average rate of obstetric trauma *with* instrument (6.0 per 100 instrument-assisted vaginal delivery) across 21 OECD countries in 2013 was nearly 4 fold the rate *without* instrument (1.6 per 100 vaginal delivery without instrument assistance). The rate of obstetric trauma after vaginal delivery *with* instrument (Figure 8.19) shows high variation across countries. Reported rates vary from below 2% in Poland, Slovenia, Italy and Israel to more than 10% in the United States, Sweden, Denmark and Canada.

Rates of obstetric trauma after vaginal delivery *without* instrument (Figure 8.20) display equally large variation across countries, ranging from 0.3% or less in Poland and Slovenia to 2.8% or above in the United Kingdom, Sweden and Canada. There is a strong relationship between the two indicators, with Poland and Slovenia reporting the lowest rates and Sweden and Canada reporting amongst the highest rates for both indicators.

Definition and comparability

The two obstetric trauma indicators are defined as the proportion of instrument assisted/non-assisted vaginal deliveries with third- and fourth-degree obstetric trauma codes in any diagnosis and procedure field. Therefore, any differences in the definition of principal and secondary diagnoses have no influence on the calculated rates. Several differences in data reporting across countries may influence the calculated rates of obstetric patient safety indicators. These relate primarily to differences in coding practice and data sources. Some countries report the obstetric trauma rates based on administrative hospital data and others based on obstetric register data. There is some evidence that registries produce higher quality data and report a greater number of obstetric trauma events compared to administrative datasets (Baghestan et al., 2007).

References

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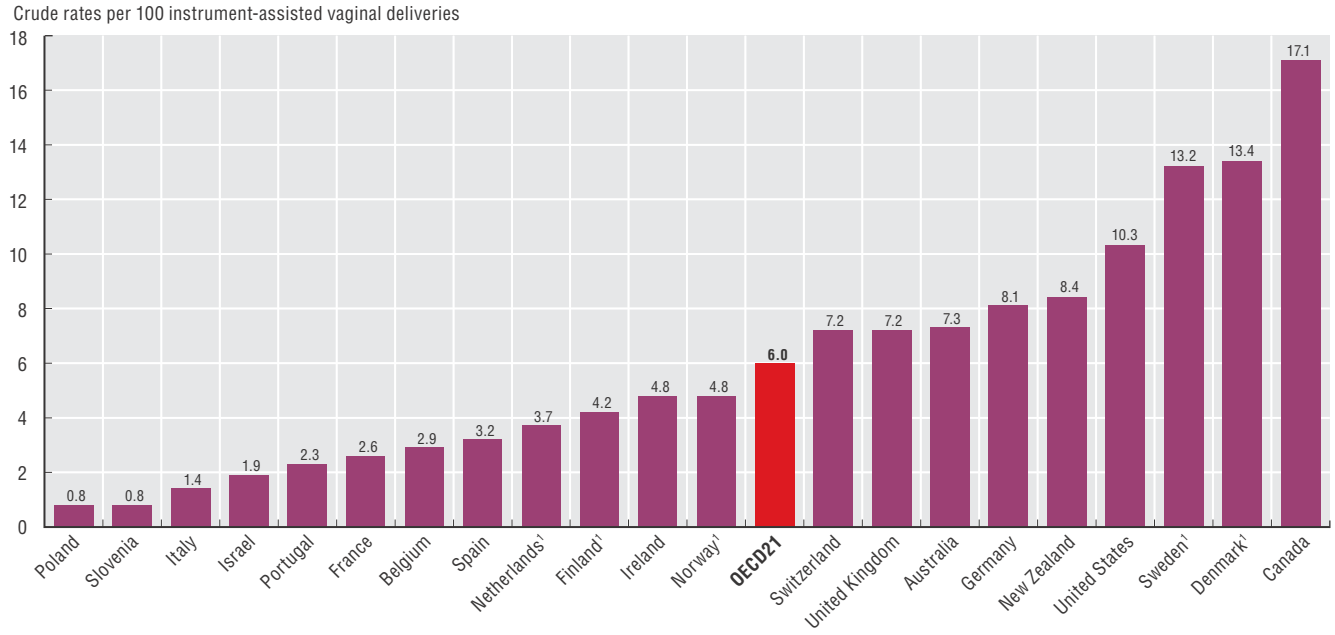
Baghestan, E. et al. (2007), "A Validation of the Diagnosis of Obstetric Sphincter Tears in Two Norwegian Databases, the Medical Birth Registry and the Patient Administration System", *Acta Obstetricia et Gynecologica*, Vol. 86, pp. 205-209.

Euro-Peristat (2013), European Perinatal Health Report: Health and Care of Pregnant Women and Babies in Europe in 2010, INSERM, Paris.

Lappen, J.R. and D.R. Gossett (2010), "Changes in Episiotomy Practice: Evidence-based Medicine in Action", *Expert Review of Obstetrics and Gynecology*, Vol. 5, No. 3, pp. 301-309.

8.19. Obstetric trauma, vaginal delivery with instrument, 2013 (or nearest year)

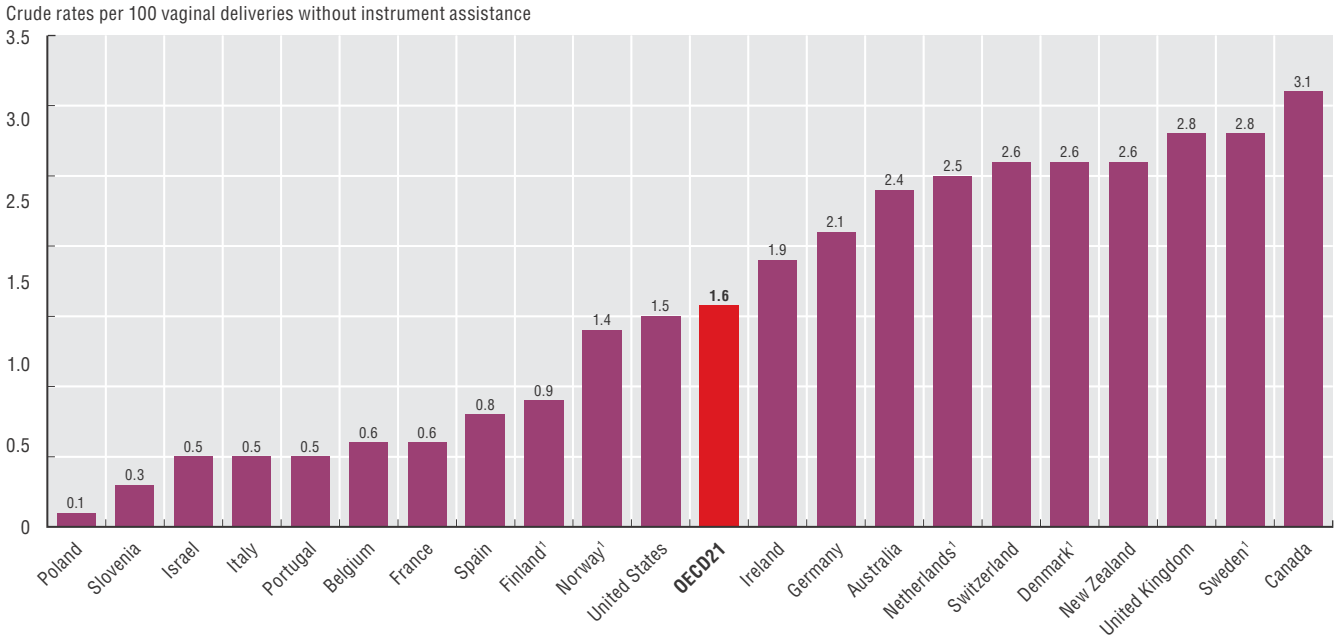


1. Based on registry data.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281174

8.20. Obstetric trauma, vaginal delivery without instrument, 2013 (or nearest year)



1. Based on registry data.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281174

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Care for people with mental health disorders

The burden of mental illness is substantial, affecting an estimated one in four of the OECD population at any time, and one in two across the life course (OECD, 2014a). High quality, timely care has the potential to improve outcomes and may help reduce suicide and excess mortality for individuals with psychiatric disorders.

High quality care for mental disorders in inpatient settings is vital. Figure 8.21 shows rates of inpatient suicide amongst all psychiatric hospital admissions. Inpatient suicide is a 'never event', which should be closely monitored as an indication of how well inpatient settings are able to keep patients safe from harm. Most countries report rates below 0.1 per 100 patients; Denmark and Estonia are exceptions with rates of 0.1 and 0.3 respectively. Steps to prevent inpatient suicide include identification and removal of likely opportunities for self-harm, risk assessment of patients, monitoring and appropriate treatment plans.

Suicide rate after discharge can be an indicator of the quality of care in the community, and co-ordination between inpatient and community settings. The risk of suicide in the first year after discharge from psychiatric inpatient care is much greater than for the general population. Suicide rate amongst patients who had been hospitalised in the previous year was 0.43 per 100 patients, compared to a suicide rate of 0.01 per 100 for the general population in 2012 across OECD countries for which these data are available. Patients with a psychiatric illness are particularly at risk immediately following discharge from hospital; in all countries suicide within 30 days of discharge amounted to at least one quarter of all suicides within the first year following discharge (Figure 8.22). Good discharge planning and follow-up, and enhanced levels of care immediately following discharge can help reduce suicide in the high-risk days immediately following discharge (OECD, 2014a).

Individuals with a psychiatric illness have a higher mortality rate than the general population. An 'excess mortality' value that is greater than one implies that people with mental disorders face a higher risk of death than the rest of the population. Figures 8.23 and 8.24 show the excess mortality for schizophrenia and bipolar disorder, which is above two in all countries. A higher rate of physical illness and chronic disease related to risk factors such as smoking, drug and alcohol abuse, side effects of psychotropic treatment and poor physical health care and increased risk of suicide contribute to excess mortality. A multifaceted disease-related approach is needed to reduce this excess mortality, including primary care prevention of physical ill health among people with mental disorders, better integration of physical and mental health care, behavioural interventions, and changing professional attitudes. For example, Sweden monitors the use of inpatient physical care for patients with a mental disorder diagnosis that could have been avoided if primary care and/or primary or secondary prevention was sufficient (OECD, 2014a; OECD, 2014b).

Definition and comparability

The inpatient suicide indicator is composed of a denominator of patients discharged with a principal diagnosis or first two listed secondary diagnosis code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99) and a numerator of the number of patients who committed "suicide" (ICD-10 codes: X60-X84). There are often fewer than ten inpatient suicides in a given year, meaning that reported rates can vary. Where possible a 3-year average has been calculated to give more stability to the indicator. This was not possible for the Czech Republic, Portugal, and Switzerland. The data should be interpreted with caution due to a very small number of cases.

Suicide within 30 days and within one year of discharge is established by linking discharge following hospitalisation with a principal diagnosis or first two listed secondary diagnosis code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99), with suicides recorded in death registries (ICD-10 codes: X60-X84). In cases with several admissions during the reference year, the follow-up period starts from the last discharge.

For the excess mortality indicators the numerator is the overall mortality rate for persons aged between 15 and 74 years old ever diagnosed with schizophrenia or bipolar disorder. The denominator is the overall mortality rate for the general population aged between 15 and 74 years old. The relatively small number of people with bipolar disorder dying in any given year can cause substantial variations from year to year in some countries. The available data in most countries did not allow the calculation of 2-year averages.

The data have been age-sex standardised to the 2010 OECD population structure, to remove the effect of different population structures across countries.

References

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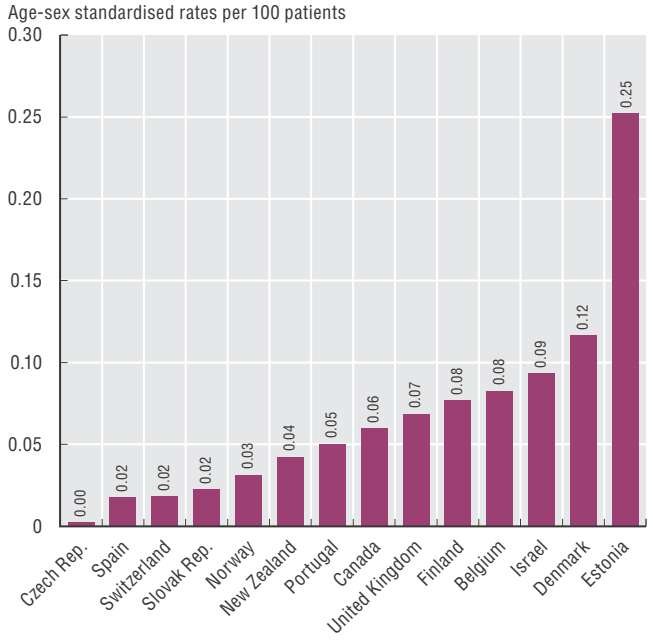
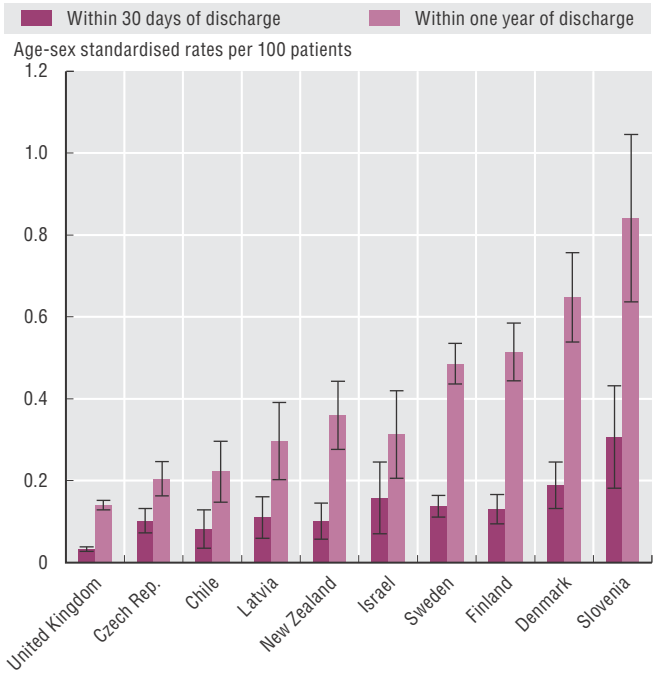
OECD (2014b), *OECD Reviews of Health Care Quality: Norway: Raising Standards*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264208469-en*.

8.21. Inpatient suicide amongst patients with a psychiatric disorder, 2013 (or latest year)



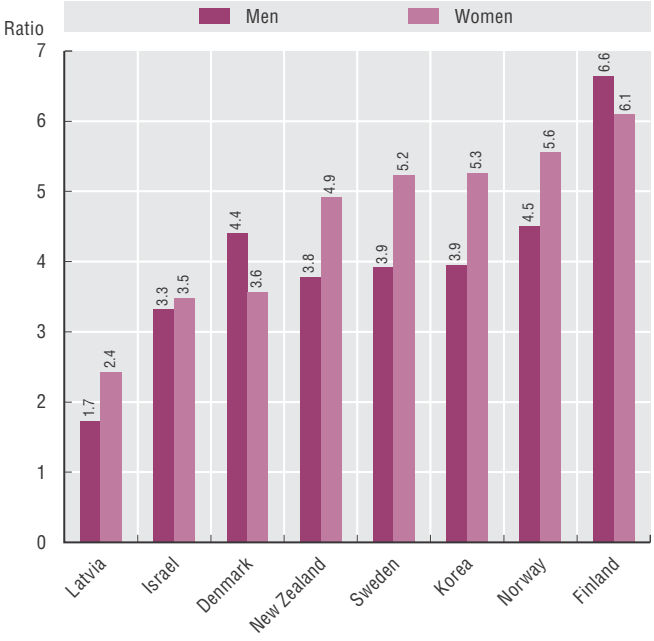
Note: Three-year average for most countries.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*
StatLink http://dx.doi.org/10.1787/888933281184

8.22. Suicide following hospitalisation for a psychiatric disorder, within 30 days and one year of discharge, 2012



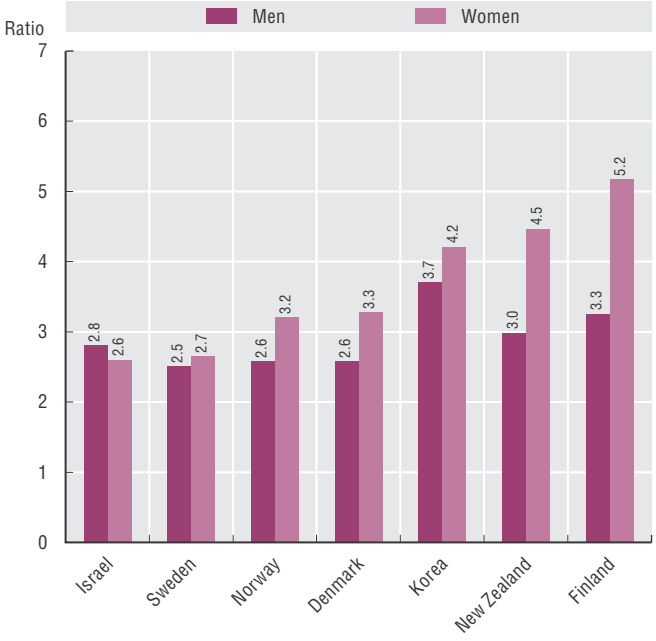
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*
StatLink http://dx.doi.org/10.1787/888933281184

8.23. Excess mortality from schizophrenia, 2013 (or latest year)



Note: Excess mortality is compared to the mortality rate for the general population.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*
StatLink http://dx.doi.org/10.1787/888933281184

8.24. Excess mortality from bipolar disorder, 2013 (or latest year)



Note: Excess mortality is compared to the mortality rate for the general population.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*
StatLink http://dx.doi.org/10.1787/888933281184

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Screening, survival and mortality for cervical cancer

Cervical cancer is highly preventable if precancerous changes are detected and treated before progression occurs. The main cause of cervical cancer, which accounts for approximately 95% of all cases, is exposure to the human papilloma virus (HPV) through sexual activity (IARC, 2005).

Countries follow different policies with regards to the prevention and early diagnosis of cervical cancer. About half of OECD countries have cervical cancer screening organised through population-based programmes but their periodicity and target age groups vary (OECD, 2013). Some countries with low cervical cancer incidence such as Israel and Switzerland do not have an organised screening programme but women in the eligible age group can have a Pap smear test performed every three years for free. WHO recommends HPV vaccinations as part of national immunisation programmes, primarily for girls aged 9-13 years, in countries where the prevention of cervical cancer is a public health priority, the introduction is feasible and financially sustainable, and cost-effectiveness has been evaluated (WHO, 2014). Nowadays, most OECD countries have HPV vaccination programmes.

Screening rates for cervical cancer ranged from 20.7% in Mexico to 84.5% in the United States in 2013 and have increased from 57.0% to 61.6% on average across OECD countries over the past decade (Figure 8.25). The coverage increase was particularly large in Korea where the screening programme was rolled out nationwide in the mid-2000s. In about half of OECD countries, however, screening coverage declined, which may be related to the introduction of HPV vaccinations, starting from the late 2000s (OECD, 2013).

Cancer survival is one of the key measures of the effectiveness of cancer care systems, taking into account both early detection of the disease and the effectiveness of treatment. Five-year relative cervical cancer survival ranges widely from 45.3% in Chile to 81.2% in Norway in recent years (Figure 8.26). Some countries with relatively high screening coverage such as the United States, Austria, the United Kingdom, New Zealand and Ireland have lower survival, but four of the five countries have low mortality. During the past decade, five-year relative survival for cervical cancer improved in many countries.

Mortality rates reflect the effect of cancer care over the past years and the impact of screening, as well as changes in incidence. The mortality rates for cervical cancer declined in most OECD countries between 2003 and 2013 (Figure 8.27). In Greece, however, the mortality rate from cervical cancer increased substantially by 47% during the same period, although it is still below the OECD average. The incidence is low and decreasing over time and it is likely that Greece can control the increasing burden of cervical cancer by providing more effective cervical cancer treatment.

Definition and comparability

Screening rates are based on surveys or encounter data, which may influence the results. Survey-based results may be affected by recall bias. Programme data are often calculated for monitoring national screening programmes and differences in target population and screening frequency may also lead to variations in screening coverage across countries.

Relative survival is the ratio of the observed survival experienced by cancer patients over a specified period of time after diagnosis to the expected survival in a comparable group from the general population in terms of age, sex and time period. Survival data for Chile, Germany and Italy are based on a sample of patients. The number of countries which monitor and report cancer survival has been increasing in recent years and an international study (Allemani et al., 2015) also shows that a wide range of countries have cancer registries which enable international comparisons of cancer survival.

Countries use either period analysis or cohort analysis to calculate cancer survival. Period analysis gives an up-to-date estimate of cancer patient survival using more recent incidence and follow-up periods than cohort analysis which uses survival information of a complete five-year follow-up period. The reference periods for diagnosis and follow-up years vary across countries.

Cancer survival presented have been age-standardised using the International Cancer Survival Standard (ICSS) population.

See indicator "Mortality from cancer" in Chapter 3 for definition, source and methodology underlying cancer mortality rates.

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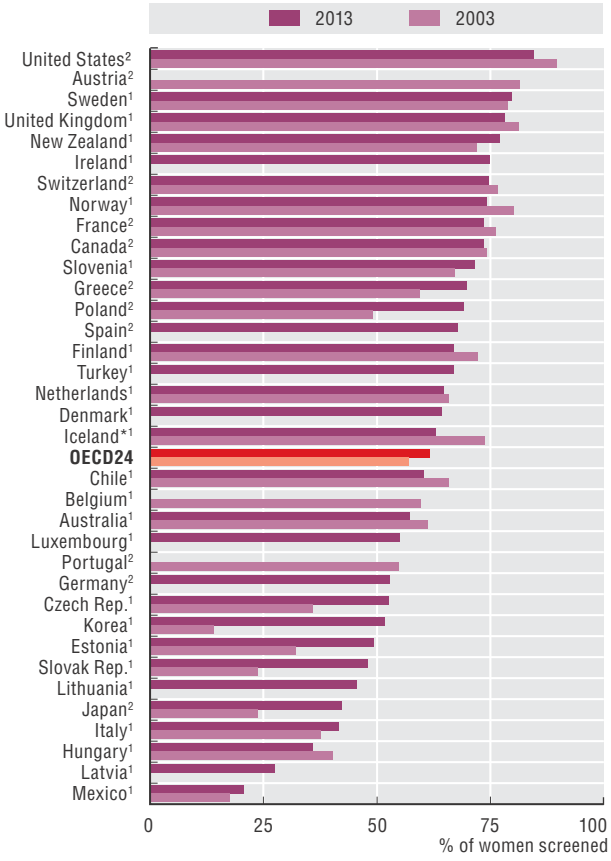
WHO (2014), "Human Papillomavirus Vaccines: WHO Position Paper, October 2014", *Weekly Epidemiological Record*, No. 43, 89, 465–492, Geneva.

8.25. Cervical cancer screening in women aged 20-69, 2003 to 2013 (or nearest years)

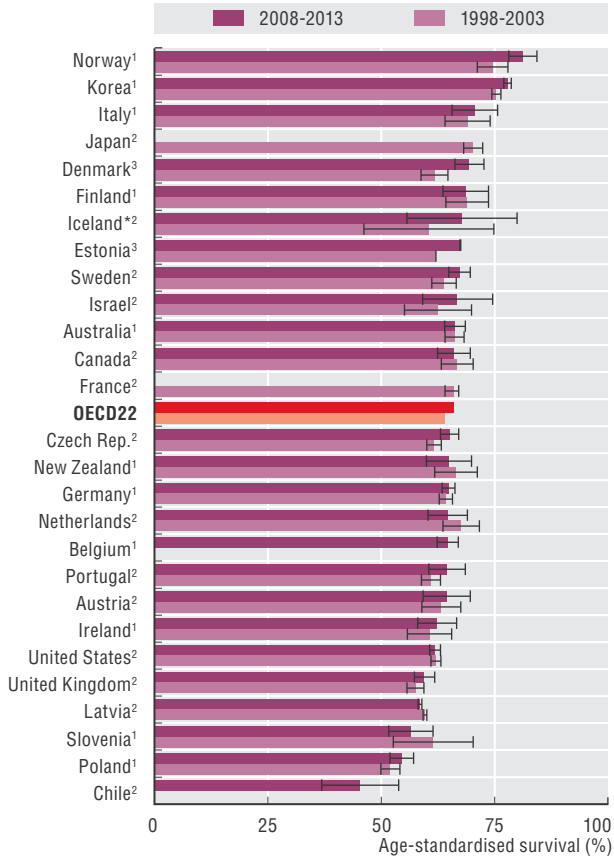


1. Programme. 2. Survey. * Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281196

8.26. Cervical cancer five-year relative survival, 1998-2003 and 2008-2013 (or nearest periods)

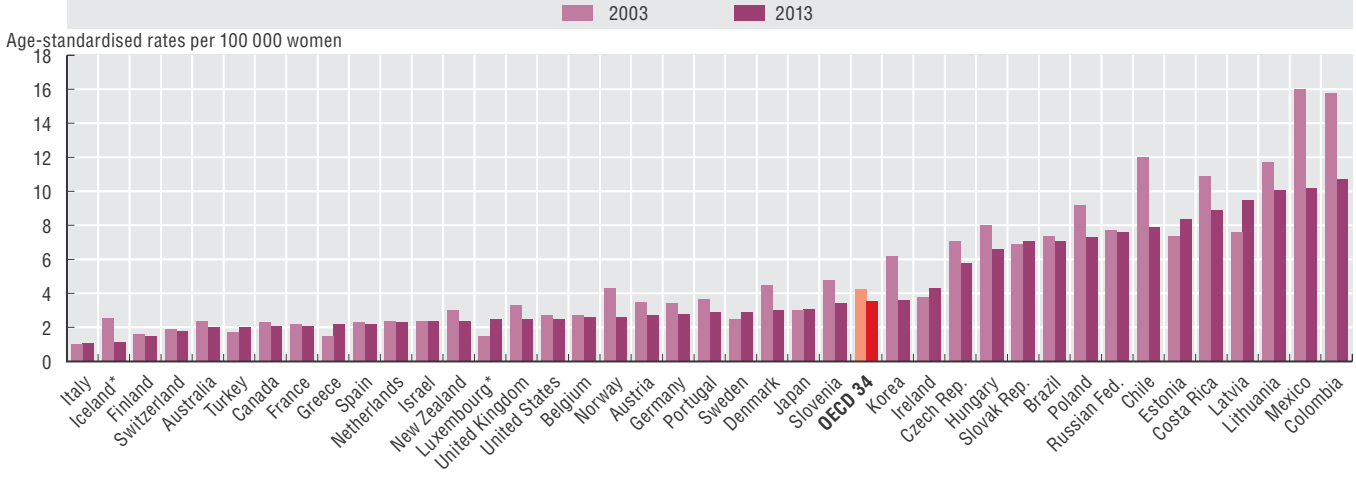


1. Period analysis. 2. Cohort analysis. 3 Different analysis methods used for different years. * Three-period average. 95% confidence intervals represented by H.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281196

8.27. Cervical cancer mortality, 2003 to 2013 (or nearest years)



* Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281196

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Screening, survival and mortality for breast cancer

Breast cancer is the most prevalent form of cancer in women across OECD countries. One in nine women will have breast cancer at some point in their life and one in thirty will die from the disease. Risk factors that increase a person's chance of getting this disease include age, family history of breast cancer, genetic predisposition, reproductive factors, oestrogen replacement therapy, and lifestyles including obesity, physical inactivity, diet and alcohol consumption.

Most OECD countries have adopted breast cancer screening programmes as an effective way for detecting the disease early, though the periodicity and population target groups vary across countries (OECD, 2013). Due to recent progress in treatment outcomes and concerns about false-positive results, over-diagnosis and overtreatment, breast cancer screening recommendations have been re-evaluated in recent years. Taking account of recent research findings, WHO recommends organised population-based mammography screening if women are able to make an informed decision based on the benefits and risks of mammography screening (WHO, 2014).

Screening rates ranged from less than 20% in Mexico to over 80% in Finland, Slovenia, Denmark and the United States in 2013 (Figure 8.28). Screening coverage increased substantially among countries with low rates a decade ago. Mexico and Chile had an increase of more than ten-fold, Korea an over four-fold increase, and the Slovak Republic and Lithuania a three-fold rise. On the other hand, countries that had the highest screening rates in the early 2000s experienced some reductions, including Finland, the United States, the Netherlands, Ireland and Norway. In Ireland, the screening programme, which was commenced on a phased basis in 2000, completed its nationwide rollout in 2009, but it is still at a stage too early to evaluate the coverage trend over time.

Breast cancer survival reflects early diagnosis as well as improved treatments. All OECD countries have attained five-year relative breast cancer survival of 80% except Estonia, Poland and Chile (Figure 8.29). Relative survival of people with cervical and colorectal cancers is also the lowest for Poland and Chile (see indicators "Screening, survival and mortality for cervical cancer" and "Survival and mortality for colorectal cancer"). In both countries, access to care is limited due to fewer numbers of cancer care centres and radiotherapy facilities. In Chile, some cancer drugs and other medical technologies are not widely available, and there are not enough specialised professionals, resulting in a long waiting time for cancer treatment (OECD, 2013).

Over the last decade, the five-year relative breast cancer survival has improved in all OECD countries. Relative survival has increased considerably in some Eastern European countries such as Estonia, the Czech Republic and Latvia, although survival after breast cancer diagnosis is still below the OECD average. The improvement may be related to strengthening of cancer care governance in these countries. For instance, the Czech Republic intensified its effort to detect breast cancer patients early through the introduction of a screening programme in 2002 and implemented a National Cancer Control Programme in 2005 to improve the quality of cancer care and cancer survival. Cancer care delivery was reorganised by reducing the number of comprehensive cancer centres while aiming to optimise the population coverage of each centre, and skilled professionals and necessary investment were allocated at each centre. The current cancer care delivery model is considered to be well organised and distributed adequately around the country, and, partly due to the more equal access, variations in cancer survival across regions have been reduced (OECD, 2013; OECD, 2014).

Mortality rates have declined in most OECD countries over the past decade (Figure 8.30). The reduction is a reflection of improvements in early detection and treatment of breast cancer. Improvements were substantial in the Czech Republic, Norway and the Netherlands with a decline of over 20% in a decade. Denmark also reported a considerable decline, but its mortality rate was still the highest in 2013. On the other hand, in Korea, Turkey and Japan, the mortality rate from breast cancer increased over the past decade, although it remains the lowest among OECD countries, and the incidence of breast cancer has doubled or more in the past decade.

Definition and comparability

Screening rates and survival are defined in indicator "Screening, survival and mortality for cervical cancer" in Chapter 8. See indicator "Mortality from cancer" in Chapter 3 for definition, source and methodology underlying cancer mortality rates.

References

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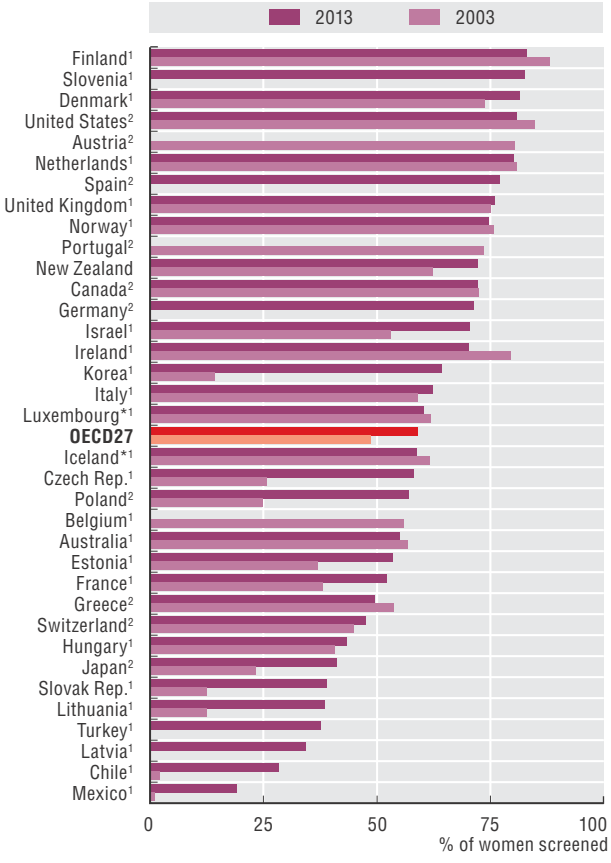
8.28. Mammography screening in women aged 50-69, 2003 to 2013 (or nearest years)

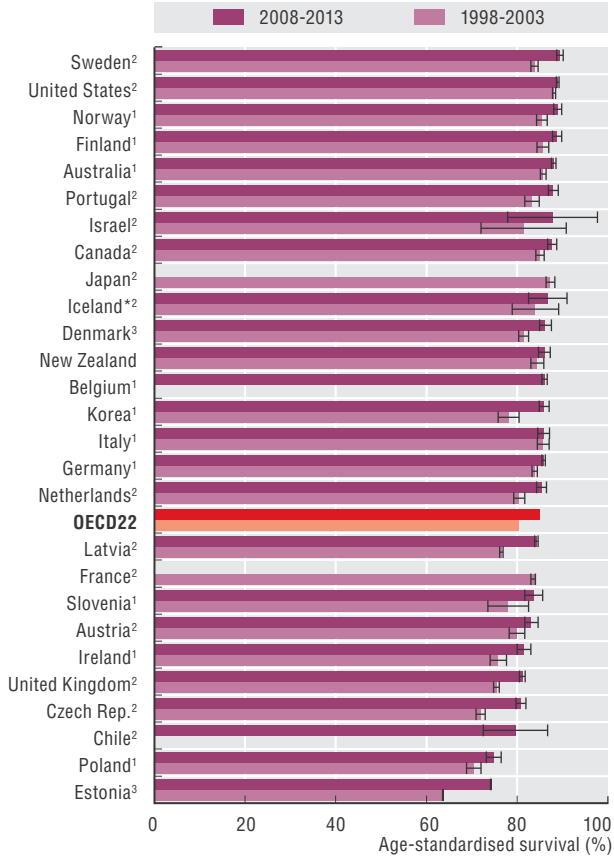


1. Programme. 2. Survey. * Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281202

8.29. Breast cancer five-year relative survival, 1998-2003 and 2008-2013 (or nearest periods)

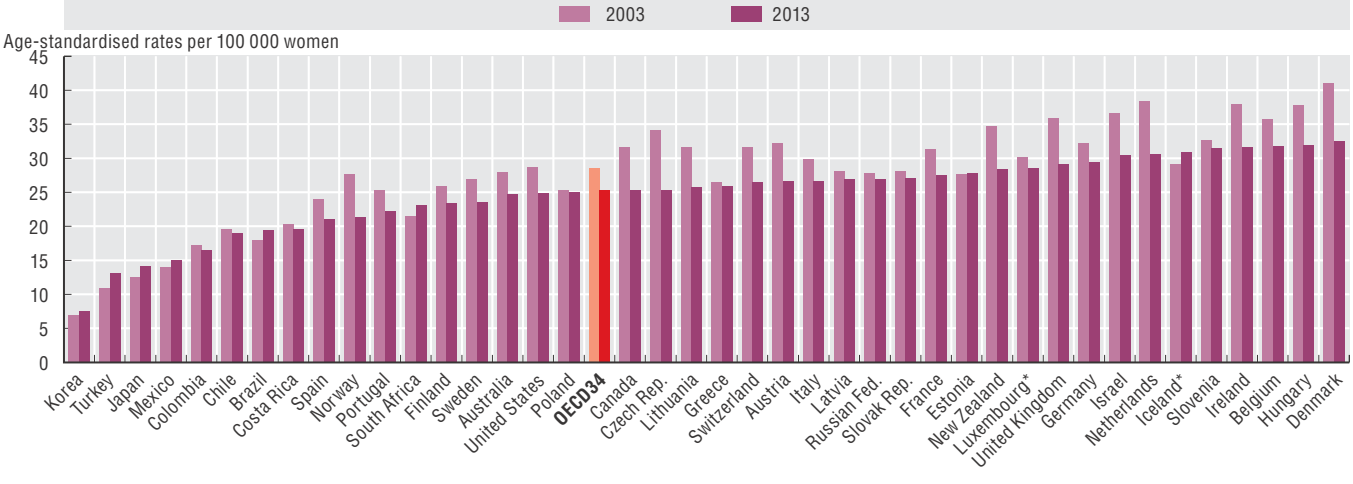


1. Period analysis. 2. Cohort analysis. 3 Different analysis methods used for different years. * Three-period average. 95% confidence intervals represented by H.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281202

8.30. Breast cancer mortality in women, 2003 to 2013 (or nearest years)



* Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281202

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Survival and mortality for colorectal cancer

Colorectal cancer is the third most commonly diagnosed form of cancer after prostate and lung cancers for men, and the second most common cancer after breast cancer for women, across OECD countries. Colorectal cancer incidence is high in Korea, the Slovak Republic, Hungary, Denmark and the Netherlands at 40 or more cases per 100 000 population while it is low in Mexico, Greece, Chile and Turkey at less than half this rate. Incidence is significantly higher for men than women across countries. There are several factors that place certain individuals at increased risk for the disease, including age, ulcerative colitis, a personal or family history of colorectal cancer or polyps, and lifestyle factors such as a diet high in fat and low in fibre, lack of physical activity, obesity, and tobacco and alcohol consumption.

Following screening for breast and cervical cancers, colorectal cancer screening has become available, and an increasing number of countries have introduced free population-based screening, targeting people in their 50s and 60s (OECD, 2013). Partly because of uncertainties about the cost-effectiveness of screening (Lansdorp-Vogelaar et al., 2010), countries are using different methods (i.e. faecal occult blood test, colonoscopy and flexible sigmoidoscopy). Multiple methods are also available within the screening programme in some countries. In most countries that provide faecal occult blood test, screening is available every two years. The screening periodicity schedule is less frequent with colonoscopy and flexible sigmoidoscopy, generally every ten years, making it difficult to compare screening coverage across countries.

Advances in diagnosis and treatment of colorectal cancer including improved surgical techniques, radiation therapy and combined chemotherapy and their wider and timelier access have contributed to increased survival over the last decade. All OECD countries showed improvement in five-year relative survival for colorectal cancer. On average, five-year colorectal cancer survival improved from 55.8% to 62.2% for people with colorectal cancer during 1998-2003 to 2008-2013 respectively (Figure 8.31). Poland, Estonia and the Czech Republic also had a considerable improvement, but cancer survival in these countries is still the lowest among OECD countries at less than 55%. Korea and Israel had the highest survival at over 70%.

In most OECD countries, colorectal cancer survival is higher for women but in Chile, Korea, Israel, Japan, Portugal, Austria and the Netherlands, men have a slightly higher survival (Figure 8.32). The gender difference is the largest in Estonia with the five-year relative survival of 48.4% for males and 55.9% for females. Slovenia, Latvia and Sweden also have a comparatively large difference.

Most countries experienced a decline in mortality of colorectal cancer in recent years, with the average rate across OECD countries falling from 27.4 to 24.2 deaths per 100 000 population between 2003 and 2013 (Figure 8.33). The decline was particularly large in the Czech Republic, Austria and Australia with a reduction of over 25%. The main exceptions to this general trend were Turkey, Brazil, Chile and Mexico where the mortality rate from colorectal cancer increased by more than 10% over the last decade, although the rate remains much lower than the OECD average. Despite some progress, Central and Eastern European countries, particularly Hungary, the Slovak Republic, Slovenia and the Czech Republic, continue to have higher mortality rates than other OECD countries.

Across countries, colorectal cancer continues to be an important cause of cancer death for both men and women (see indicator "Mortality from cancer" in Chapter 8) and countries will need to make further effort to promote not only early diagnosis and effective treatment but also healthy lifestyles to reduce its risk factors (see Chapter 8 "Non-medical determinants").

Definition and comparability

Survival and mortality rates are defined in indicator "Screening, survival and mortality for cervical cancer" in Chapter 8. See indicator "Mortality from cancer" in Chapter 3 for definition, source and methodology underlying cancer mortality rates. Survival and mortality rates of colorectal cancer are based on ICD-10 codes C18-C21 (colon, rectosigmoid junction, rectum, and anus).

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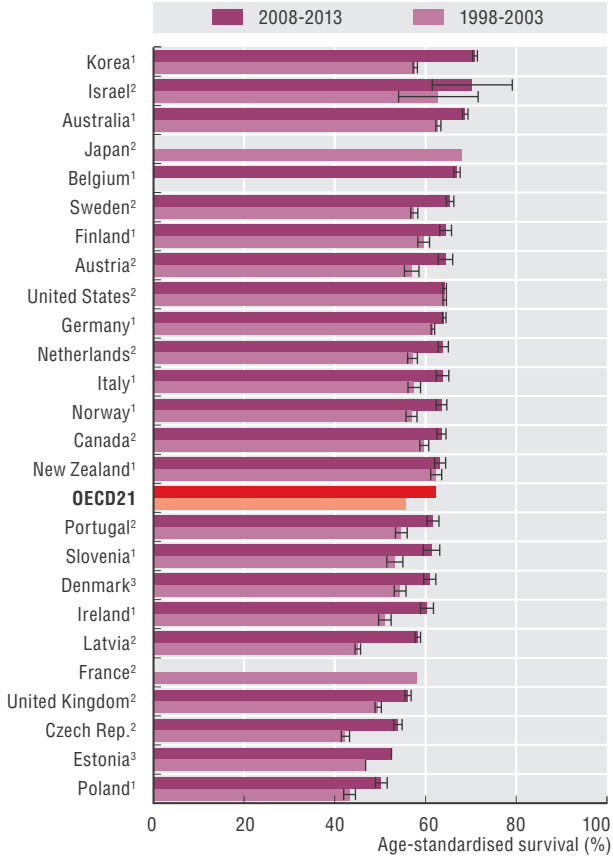
OECD (2013), *Cancer Care: Assuring Quality to Improve Survival*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264181052-en*.

8.31. Colorectal cancer, five-year relative survival, 1998-2003 and 2008-13 (or nearest periods)

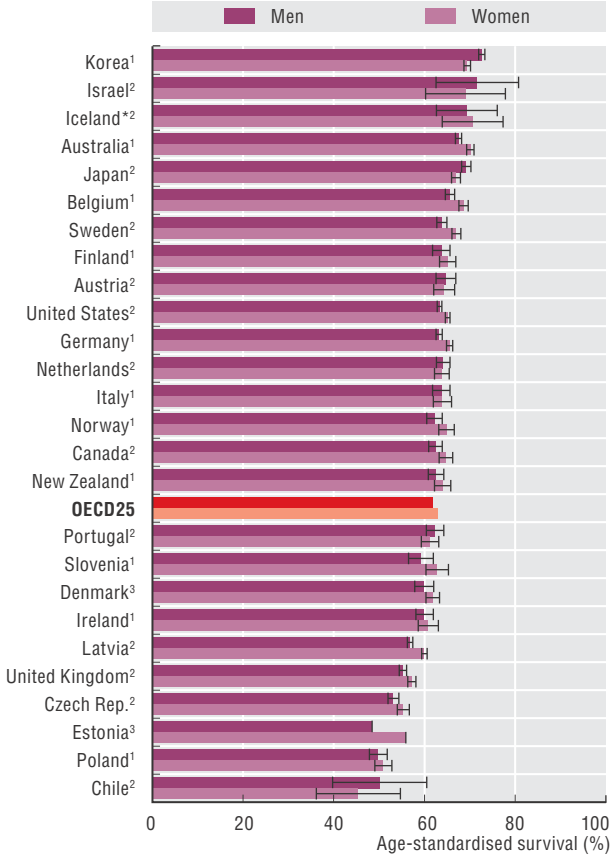


1. Period analysis, 2. Cohort analysis. 95% confidence intervals represented by H.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281219

8.32. Colorectal cancer, five-year relative survival by gender, 2008-13 (or nearest periods)

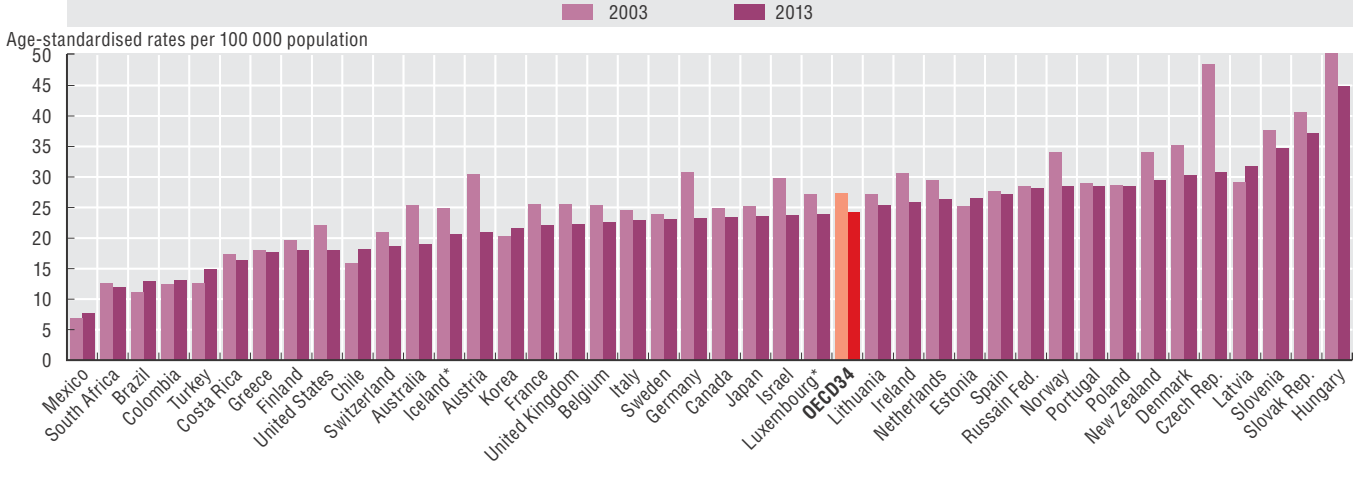


1. Period analysis. 2. Cohort analysis. 3 Different analysis methods used for different years. * Three-period average. 95% confidence intervals represented by H.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281219

8.33. Colorectal cancer mortality, 2003 to 2013 (or nearest years)



* Three-year average.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281219

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Childhood vaccination programme

All OECD countries have established vaccination programmes based on their interpretation of the risks and benefits of each vaccine. Figures 8.34 and 8.35 show that the overall vaccination of children against measles and diphtheria, tetanus and pertussis (DTP) is high in OECD countries. On average, 95% of children receive the recommended DTP vaccination and 94% receive measles vaccinations in accordance with national immunisation schedules. Rates for DTP vaccinations are below 90% only in Indonesia, Austria, Mexico, India and South Africa. Rates for measles vaccinations are below 90% in Denmark, France, Mexico, Indonesia, Austria, India and South Africa.

While national coverage rates are high in many countries, some parts of the population remain exposed to certain diseases. For example, the United States reported 189 measles cases between 1 January and 18 Septembre 2015. Most of these cases were linked to an amusement park in California. The Centers for Disease Control and Prevention reported that most of the measles cases in 2015 were in unvaccinated people. In the previous year, over 650 cases of measles were reported in the United States, the highest number of cases since measles elimination was documented in 2000. Many of the cases were associated with a large outbreak that originated in the Philippines (Centers for Disease Control and Prevention, 2015). In July 2015, the first death related to measles since 2003 was reported in the United States (Washington State Department of Health, 2015).

Parts of Europe also reported large number of measles cases in 2015. During the 12 months to June 2015, more than 4 000 cases were reported across 30 countries. More than half the cases were in Germany, with over 400 cases reported in Italy. The measles-related death of an 18-month toddler in Germany was reported in February 2015. Most of the cases across Europe were among unvaccinated people (European Centre for Disease Prevention and Control, 2015). Catch-up programmes in older children may be needed to avoid the risk of, or respond to, measles outbreaks. Such a campaign was conducted in the United Kingdom in 2013.

Figure 8.36 shows the percentage of children aged one year vaccinated for hepatitis B. The hepatitis B virus is transmitted by contact with blood or body fluids of an infected person. A small proportion of infections become chronic, and these people are at high risk of death from cancer or cirrhosis of the liver. A vaccination has been available since 1982 and is considered to be 95% effective in preventing infection and its chronic consequences. Since a high proportion of chronic infections are acquired during early childhood, the WHO recommends that all infants should receive their first dose of hepatitis B vaccine as soon as possible after birth, preferably within 24 hours (WHO, 2015).

Most countries have followed the WHO recommendation to incorporate hepatitis B vaccine as an integral part of their national infant immunisation programme. Across the OECD, the average immunisation coverage for hepatitis B for children aged one year old is 92%. In countries such as China, the Czech Republic and Korea, it reaches 99%. However, a number of countries do not require children to be vaccinated, and consequently the rates for these countries are significantly lower than other countries. For example, in Denmark, Sweden and the United Kingdom, vaccination against hepatitis B is not part of the general infant vaccination programme, but is provided to high-risk groups such as children with mothers who are infected by the hepatitis B virus. Other OECD countries that do not include vaccination against hepatitis B in their infant programmes are Iceland, Finland, Hungary, Japan, Slovenia and Switzerland. In Canada, not all jurisdictions immunise infants against hepatitis B, with some doing this at school age.

Definition and comparability

Vaccination rates reflect the percentage of children that receives the respective vaccination in the recommended timeframe. The age of complete immunisation differs across countries due to different immunisation schedules. For those countries recommending the first dose of a vaccine after age one, the indicator is calculated as the proportion of children less than two years of age who have received that vaccine. 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.

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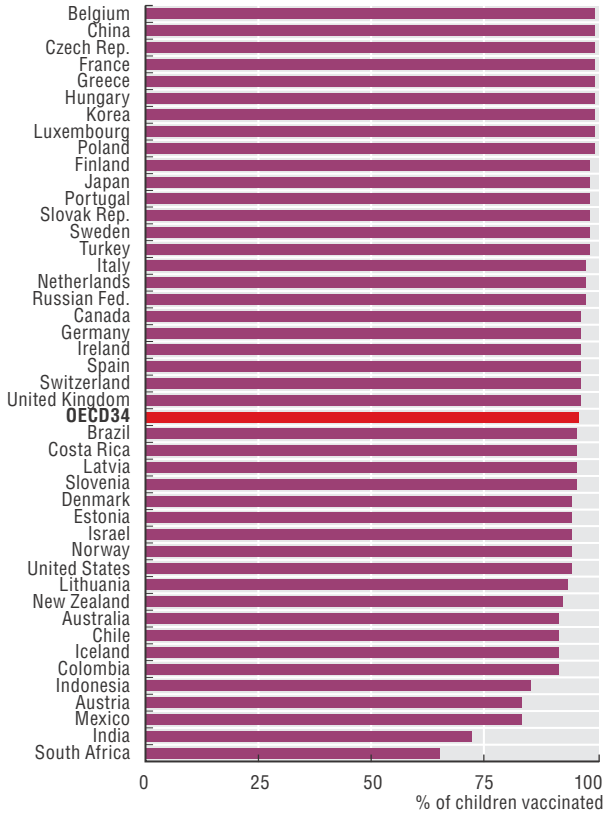
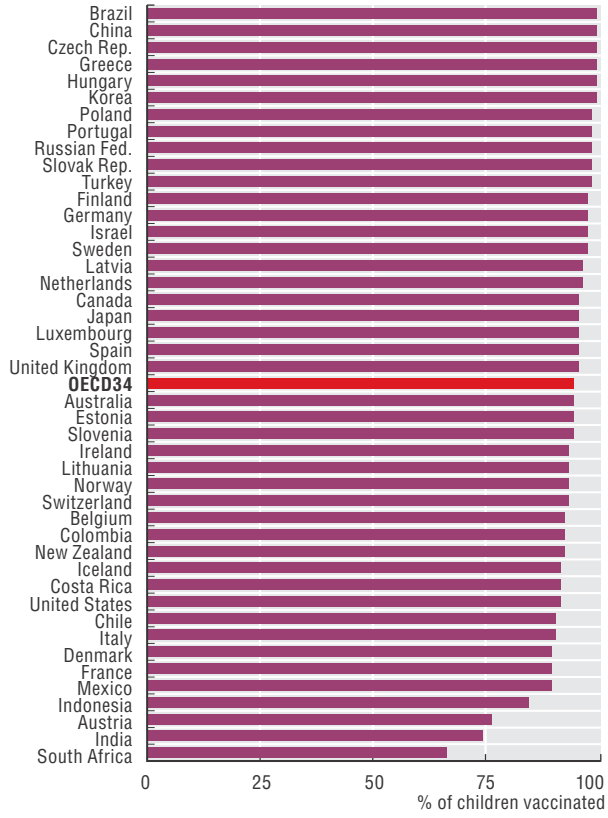
8.34. Vaccination against diphteria, tetanus and pertussis, children aged 1, 2013



Source: WHO/UNICEF.

StatLink http://dx.doi.org/10.1787/888933281226

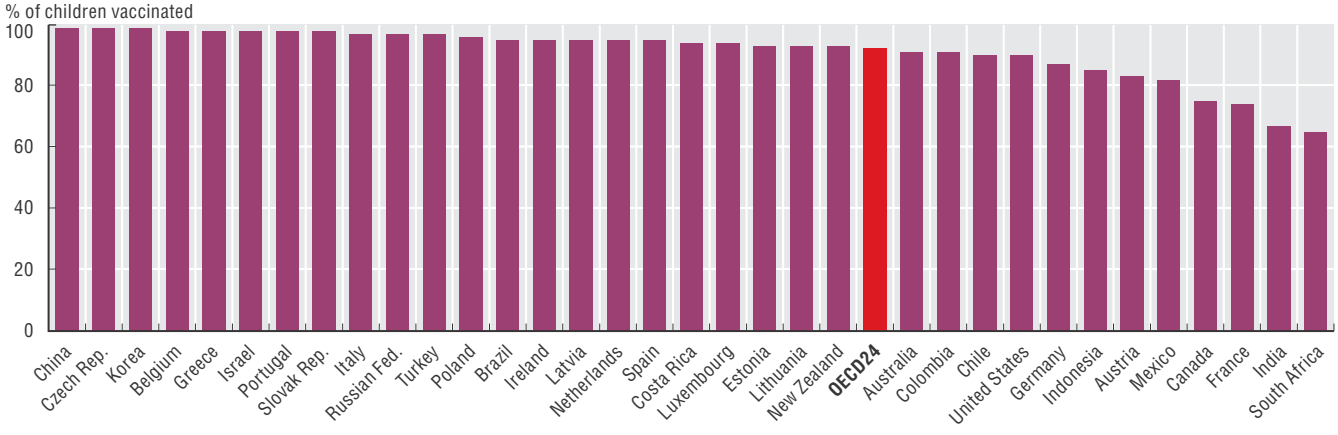
8.35. Vaccination against measles, children aged 1, 2013



Source: WHO/UNICEF.

StatLink http://dx.doi.org/10.1787/888933281226

8.36. Vaccination against hepatitis B, children aged 1, 2013



Source: WHO/UNICEF.

StatLink http://dx.doi.org/10.1787/888933281226

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Influenza vaccination for older people

Influenza is a common infectious disease affecting 5%-10% of adults and 20%-30% of children. There are an estimated 3 to 5 million cases of severe influenza-related illness worldwide each year, and 250 000 to 500 000 deaths (WHO, 2014). Influenza can also have a major impact on health care systems. In the United States, it is estimated that each year, more than 200 000 people are hospitalised for respiratory and heart condition illnesses associated with seasonal influenza virus infections (Thompson et al., 2004). At certain times of the year, influenza can place health systems under significant stress. For example, in Ontario, Canada, the average annual rate of emergency department visits attributable to seasonal influenza is 500 per 100 000 population. This rate increased to an estimated 1 000 per 100 000 population during the H1N1 pandemic in 2009 (Schanzer et al., 2013).

In 2003, countries participating in the World Health Assembly committed to the goal of attaining vaccination coverage against influenza of at least 50% of the elderly population by 2006 and 75% by 2010. Figure 8.37 shows that in 2013, the OECD average influenza vaccination rate for people aged 65 and over was 48%. Vaccination rates are as low as 1.1% in Estonia, where influenza vaccination is recommended but not free. Only four countries have attained the 75% target: Mexico, Korea, Chile and the United Kingdom. Australia came close to meeting the target.

Figure 8.38 indicates that between 2003 and 2013, the vaccination rate against influenza among the elderly population has remained stable on average among the group of OECD countries that have trend data over this period, but with no uniform trend across countries. In some countries, such as New Zealand, Israel, Germany, Denmark, the Czech Republic and the United Kingdom, the percentage of the population aged 65 and over vaccinated against influenza has increased, while it has come down in other countries such as the Netherlands, Spain, France, the Slovak Republic and Slovenia.

In June 2009, the WHO declared an influenza pandemic. The H1N1 influenza virus (also referred to as "swine flu") infected an estimated 11% to 18% of the global population (Kelly et al., 2011). Mexico was at the centre of the pandemic, being among the first countries where swine flu was detected and also where mortality rates were reportedly higher than those in many other countries. The high rate of seasonal vaccinations that are still being observed in Mexico may come as a result of the H1N1 experiences in that country. In other countries, however, the take-up rate of H1N1 vaccine was lower than expected, despite the vaccine being included in most 2009-10 vaccination programmes. In part, this may be due to the easing of concerns about the threat of H1N1 amongst the general population by the time the vaccine became available. Studies have shown that the most important determinant for individuals to take-up H1N1 vaccine was previous exposure to seasonal flu vaccine, leading some researchers to argue that higher vaccination rates for seasonal flu may help take-up during potential future pandemics (Nguyen et al., 2011).

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. In some countries, the data are for people over 60 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.

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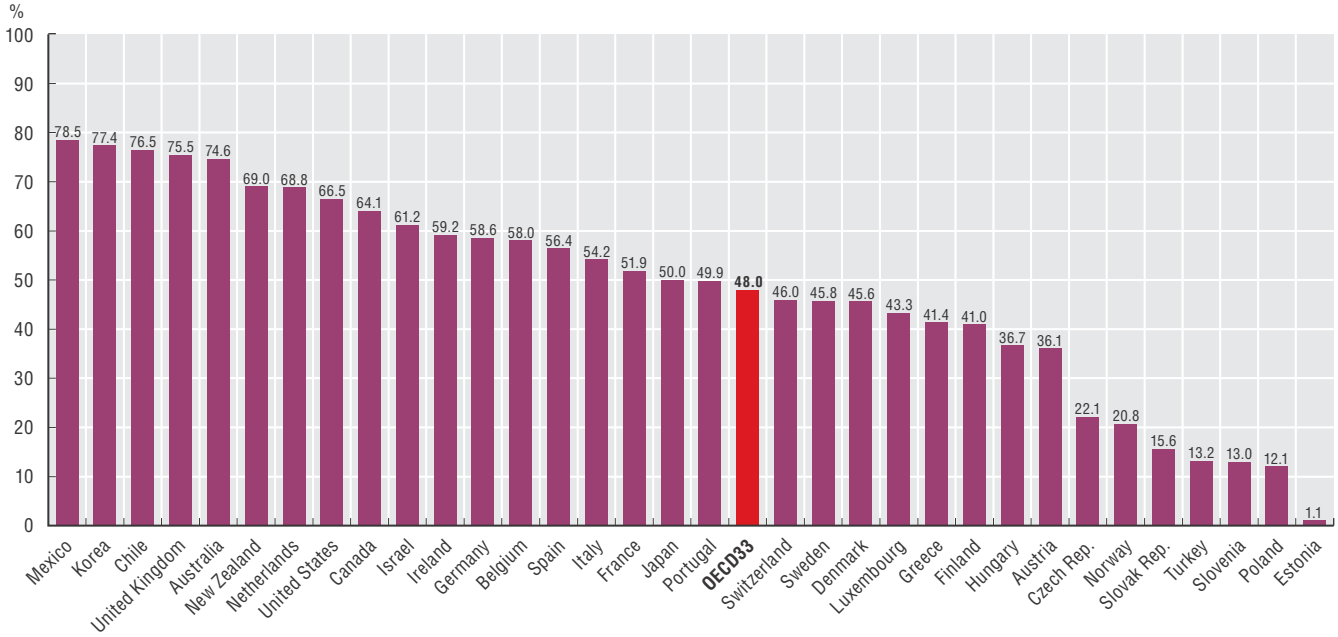
WHO (2014), "Influenza (Seasonal)", *Fact Sheet No. 211*, available at: *www.who.int/mediacentre/factsheets/fs211/en/* (accessed 23/06/2015).

8.37. Influenza vaccination coverage, population aged 65 and over, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

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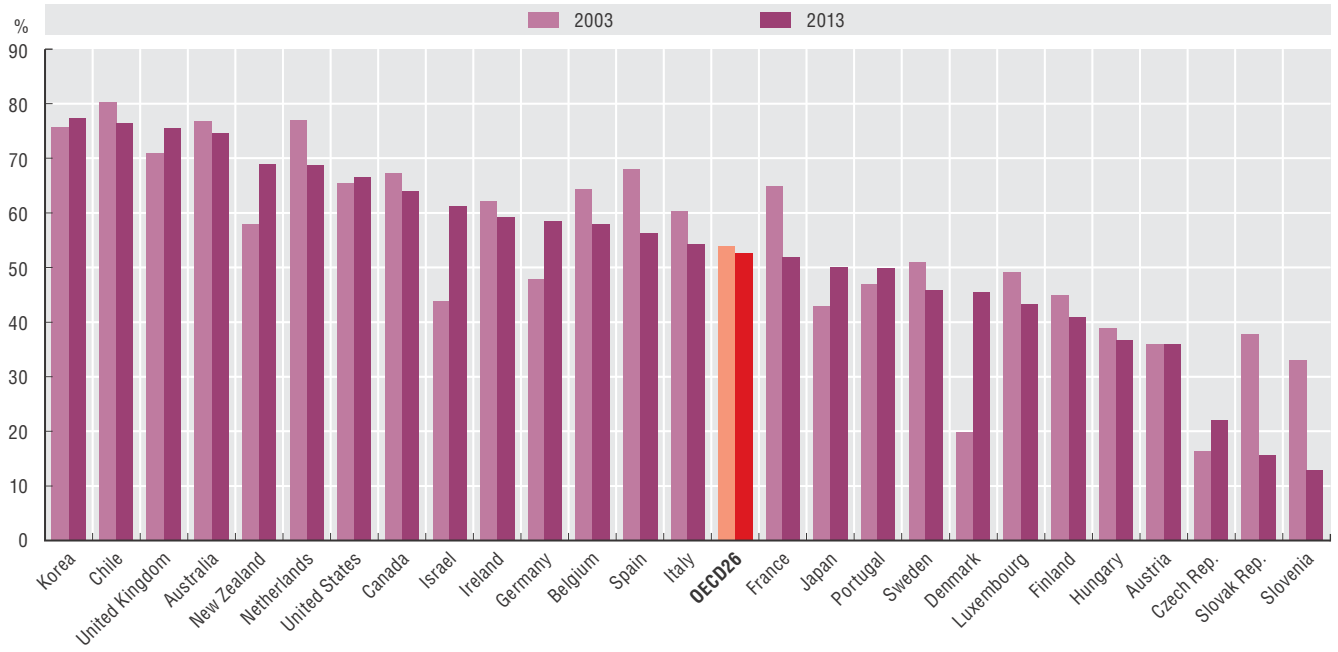
8.38. Influenza vaccination coverage, population aged 65 and over, 2003 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

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Information on data for Israel: *http://oe.cd/israel-disclaimer*

Patient experience with ambulatory care

Delivering health care that is responsive and patient-centered is playing a greater role in health care policy across OECD countries. Measuring and monitoring patient experience empowers patients and the public, involves them in decisions on health care delivery and governance, and provides insight into the extent to which they are health-literate and have control over the treatment they receive. Across countries, using the health care user as a direct source of information is becoming more prevalent for health system monitoring, planning and decision making, and efforts to measure and monitor patient experiences have actually led to health care quality improvements (Fujisawa and Klazinga, forthcoming).

Since the mid-1990s, there have been efforts to institutionalise measurement and monitoring of patient experiences. In many countries, responsible organisations have been established or existing institutions have been taking charge of measuring and reporting patient experiences. They developed survey instruments for regular collection of patient experience data and standardised procedures for analysis and reporting. An increasing number of countries collect not only Patient-Reported Experience Measures (PREMs) but also Patient-Reported Outcome Measures (PROMs) which collect patients' perception on their specific medical conditions and general health, including mobility, pain/discomfort and anxiety/depression, before and after a specific medical intervention such as hip and knee replacement.

A growing number of countries are using patient-reported data to drive quality improvements in health systems. Patient experience data are reported in periodic national health system reports or on public websites, showing differences across providers, regions and over time. Korea, Norway, Sweden and the United Kingdom use patient experience measures in payment mechanisms or for fund allocations to promote quality improvement and patient-centred care, and Australia, Canada, the Czech Republic, Denmark and France use them to inform health care regulators for inspection, regulation and/or accreditation. Patient-reported measures are also used in some Canadian jurisdictions, Denmark, France and the Netherlands to provide specific feedback for providers' quality improvement. In England, PROMs and patients' feedback about their experience are used to inform patient choice and to incentivise service improvement. For example, PROMs data for patients undergoing some procedures such as hip and knee replacement are used for benchmarking hospitals. The use of PROMs can also enable the potential shift from a volume-based to a value-based model of health system resource management (Canadian Institute for Health Information, 2015).

Patients generally report positive experiences when it comes to communication and autonomy in the ambulatory health care system. Across countries, the majority of patients report positive experiences with regards to time spent with the doctor (Figure 8.39), easy-to-understand explanations (Figure 8.40), opportunities to ask questions or raise concerns (Figure 8.41), as well as involvement in care and treatment decisions (Figure 8.42). For all four aspects of patient experience, Belgium and Luxembourg score high at above 95% of patients reporting positive experiences. Poland has lower rates with fewer than one in two patients reporting having been given the opportunity to ask questions or been involved in their care and treatment during consultation. The proportion of patients with positive experience has decreased since 2010 in Australia, France, the Netherlands and Switzerland, but countries with lower rates such as Sweden and Poland have improved some aspects of patient experiences in recent years (Commonwealth Fund, 2010).

Definition and comparability

In order to measure and monitor general patient experience in the health system, the OECD recommends collecting data on patient experience with any doctor in ambulatory settings. An increasing number of countries have been collecting patient experience data based on this recommendation through nationally representative population surveys while Japan and Portugal collect them through nationally-representative service user surveys. Some countries, however, collect data on patient experience with a regular doctor. For about half the countries presented, the Commonwealth Fund's *International Health Policy Surveys 2010 and 2013* were used, even though there are critiques relating to the sample size and response rates. Data from this survey refer to patient experience with a regular doctor rather than any doctor.

Rates are age-sex standardised to the 2010 OECD population, to remove the effect of different population structures across countries.

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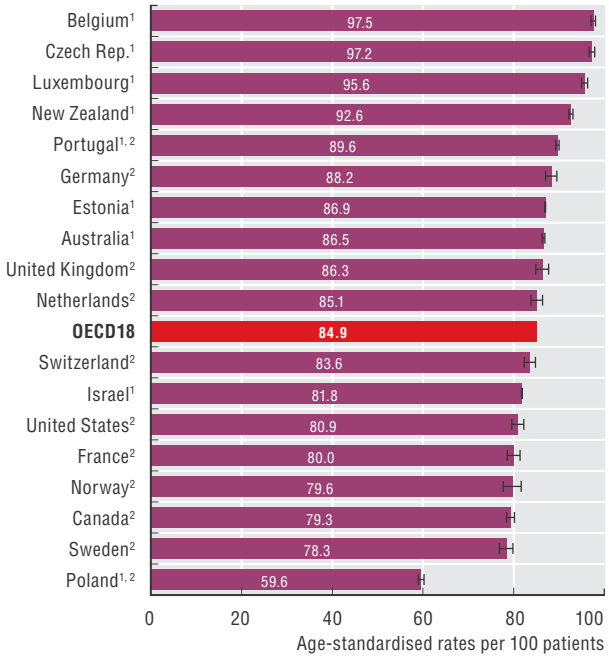
8.39. Doctor spending enough time with patient in consultation, 2013 (or nearest year)



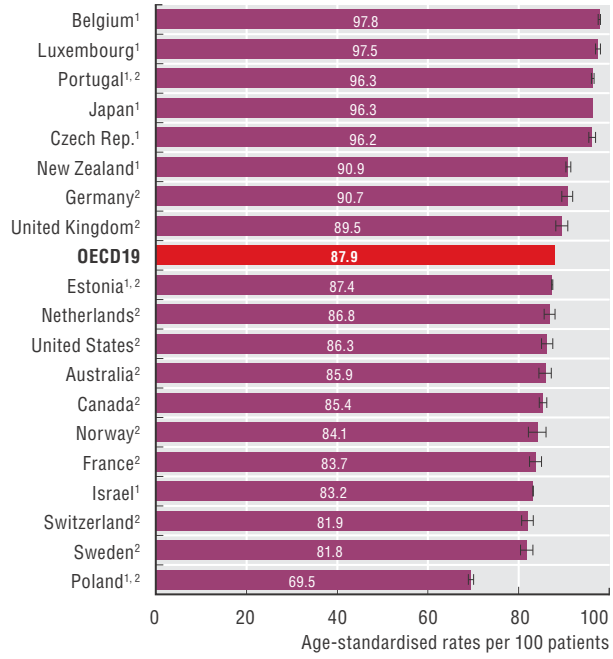
Note: 95% confidence intervals represented by H.

1. National sources. 2. Data refer to patient experiences with regular doctor.

Source: Commonwealth Fund International Health Policy Survey 2013 and other national sources.

StatLink http://dx.doi.org/10.1787/888933281241

8.40. Doctor providing easy-to-understand explanations, 2013 (or nearest year)



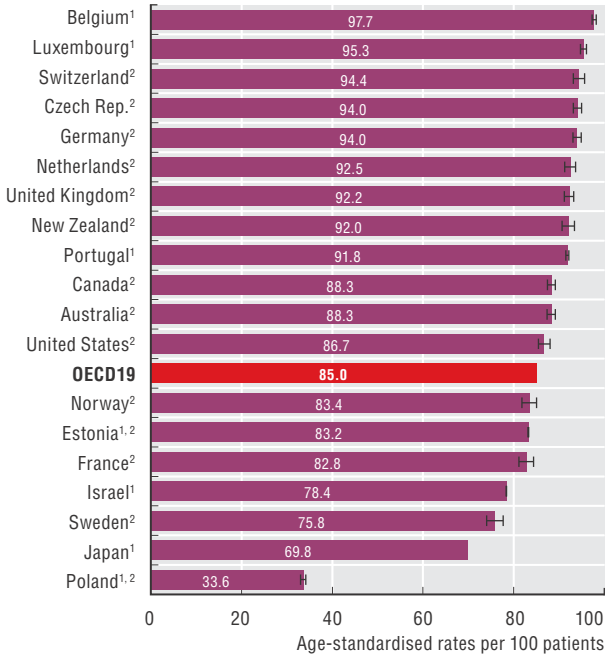
Note: 95% confidence intervals represented by H.

1. National sources. 2. Data refer to patient experiences with regular doctor.

Source: Commonwealth Fund International Health Policy Survey 2013 and other national sources.

StatLink http://dx.doi.org/10.1787/888933281241

8.41. Doctor giving opportunity to ask questions or raise concerns, 2013 (or nearest year)



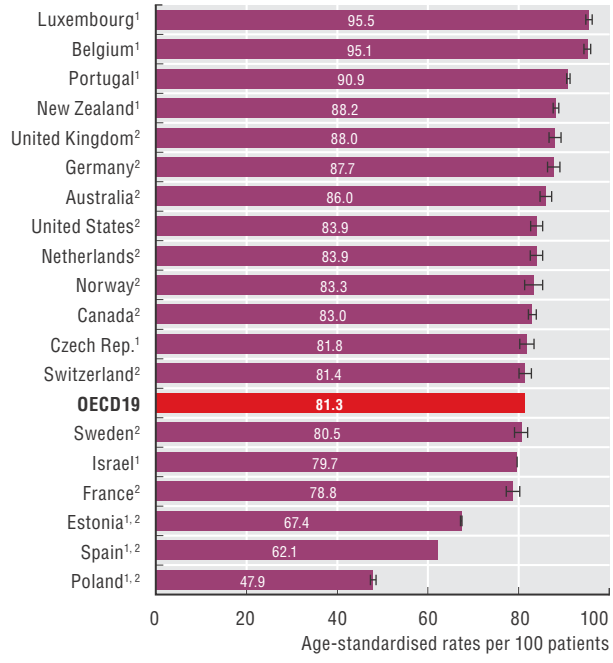
Note: 95% confidence intervals represented by H.

1. National sources. 2. Data refer to patient experiences with regular doctor.

Source: Commonwealth Fund International Health Policy Survey 2010 and other national sources.

StatLink http://dx.doi.org/10.1787/888933281241

8.42. Doctor involving patient in decisions about care and treatment, 2013 (or nearest year)



Note: 95% confidence intervals represented by H.

1. National sources. 2. Data refer to patient experiences with regular doctor.

Source: Commonwealth Fund International Health Policy Survey 2013 and other national sources.

StatLink http://dx.doi.org/10.1787/888933281241

Information on data for Israel: *http://oe.cd/israel-disclaimer*

9. HEALTH EXPENDITURE AND FINANCING

Health expenditure per capita

Health expenditure in relation to GDP

Health expenditure by function

Financing of health care

Expenditure by disease and age

Capital expenditure in the health sector

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Health expenditure per capita

The amount that each country spends on health, for both individual and collective services, and how this changes over time can be the result of a wide array of social and economic factors, as well as the financing and organisational structures of a country's health system.

In 2013, the United States continued to outspend all other OECD countries by a wide margin, with the equivalent of USD 8 713 for each US resident (Figure 9.1). This level of health spending is two-and-a-half times the average of all OECD countries (USD 3 453) and nearly 40% higher than the next biggest spender, Switzerland (adjusted for the different purchasing powers – see "Definition and comparability" box). Compared with some other G7 countries, the United States spends around twice as much on health care per person as Germany, Canada and France. Countries spending less than half the OECD average include many of the central European members of the OECD, such as Hungary and Poland, together with Chile. The lowest per capita spenders on health in the OECD were Mexico and Turkey with levels of less than a third of the OECD average. Outside of the OECD, among the key partner countries, China and India spent 13% and 4% of the OECD average on health in per capita terms in 2013.

Figure 9.1 also shows the breakdown of per capita spending on health into public and private sources (see the indicator on "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 all other OECD countries, with the exception of Norway and the Netherlands.

Per capita spending on health across the OECD edged up slightly in 2013 continuing a trend of recent years. This slow rise comes after health spending growth ground to a halt in the wake of the global financial and economic crisis. Between 2009 and 2013, average annual health spending growth across the OECD was 0.6%, in contrast to the 3.4% in the period between 2005 and 2009 (Figure 9.2). There has been a difference of health spending growth between Europe and the rest of the OECD with some European countries facing dramatic reductions in health spending from 2010 onwards.

There have been some significant changes in the annual growth rates in health spending in the years before and during the financial crisis in a number of countries. Annual increases have been reversed in Greece (5.4% vs. -7.2%) and Ireland (5.3% vs. -4.0%) and have slowed down in the vast majority of OECD countries. Only six countries – Hungary, Mexico, Switzerland, Israel, Japan and Chile – recorded higher average growth following the crisis than pre-2009.

Chile, Korea and Turkey saw health spending increase by more than 5% in real terms in 2013. For Chile and Korea, this level of spending growth has been constant since 2009. Preliminary estimates for 2014 point towards a slight slowdown in health spending in Japan, after recent strong growth.

In the United States, health spending grew by 1.5% in 2013, less than half the average annual growth rate prior to 2009. The latest forecasts from the Centers for Medicare and Medicaid Services point to faster growth in 2014 as more Americans gain health insurance coverage (Keehan et al., 2015).

Canada has seen a sustained period of low growth since 2010. This is in contrast to the average 3.5% growth per year between 2005 and 2009. With health spending growth estimated to have continued below economic growth, health spending as a share of GDP has also declined from a high of 10.6% in 2009 to 10.2% in 2013.

Definition and comparability

Expenditure on health measures the final consumption of health goods and services (*i.e.* current health expenditure). This includes spending by both public and private sources on medical services and goods, public health and prevention programmes and administration, but excludes spending on capital formation (investments).

To compare spending levels between countries, per capita health expenditures are converted to a common currency (US dollar) and adjusted to take account of the different purchasing power of the national currencies. Economy-wide (GDP) PPPs are used as the most available and reliable conversion rates.

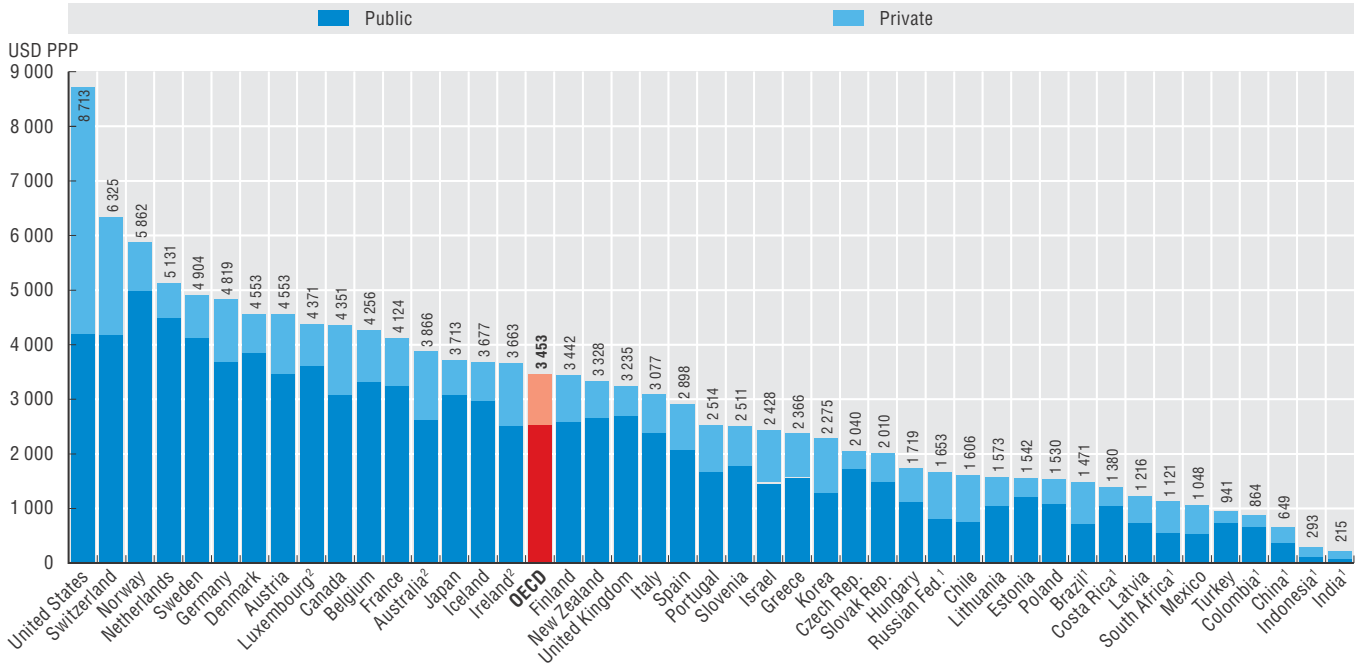
For the calculation of growth rates in real terms, economy-wide GDP deflators are used. In some countries (e.g. France and Norway) health-specific deflators exist, based on national methodologies, but these are not used due to limited comparability.

Note: Ireland is currently implementing a project to report increased detail on health expenditure and financing data in accordance with international guidelines. Data for 2013 is therefore not available and revisions to this and the following indicators will be made available on completion of the project.

References

Keehan, S.P. et al. (2015), "National Health Expenditure Projections, 2014-24: Spending Growth Faster Than Recent Trends", *Health Affairs*, Vol. 34, No. 8, pp. 1407-1417.

9.1. Health expenditure per capita, 2013 (or nearest year)



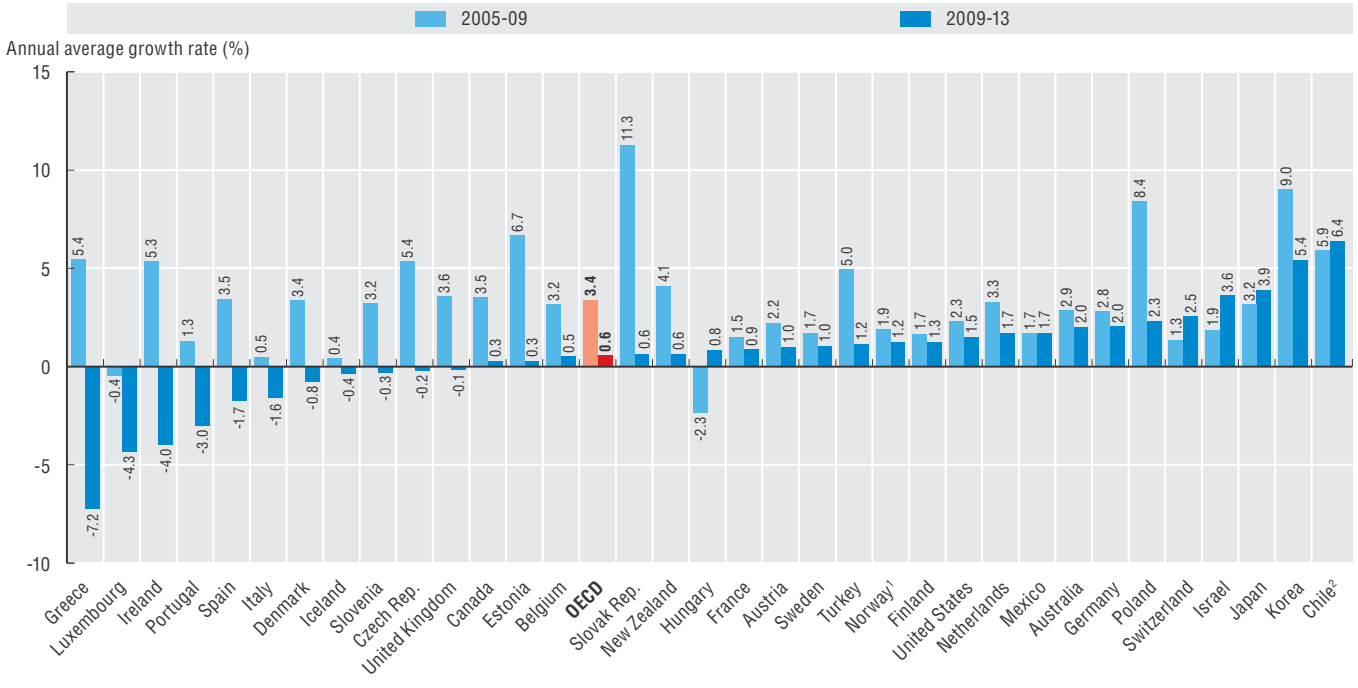
Note: Expenditure excludes investments, unless otherwise stated.

1. Includes investments.
2. Data refers to 2012.

Source: *OECD Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888933281252

9.2. Annual average growth rate in per capita health expenditure, real terms, 2005 to 2013 (or nearest years)



1. Mainland Norway GDP price index used as deflator. 2. CPI used as deflator.

Source: *OECD Health Statistics 2015*, *http://dx.doi.org/10.1787/health-data-en*.

StatLink http://dx.doi.org/10.1787/888933281252

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Health expenditure in relation to GDP

The change in how much a country spends on healthcare in relation to spending on all the other goods and services in the economy can depend on both fluctuations in the rate of health spending itself as well as growth in the economy as a whole. The 2000s were characterised by a period of health spending growth above that of the overall economy so that health expenditure as a share of GDP rose sharply in many OECD countries. However, the economic crisis that took hold in 2008 resulted in an initial rise followed by a reduction in the health spending to GDP ratio across many OECD countries.

Health spending accounted for 8.9% of GDP (excluding investment) on average across OECD countries in 2013, unchanged from 2012 and up marginally from 8.8% in 2011 (Figure 9.3). Including capital spending (see the indicator on "Capital expenditure in the health care sector"), expenditure on health as a share of GDP is estimated to have been 9.3% on average in 2013.

In 2013, the United States spent 16.4% of GDP on health, remaining well above the OECD average and more than five percentage points above a group of high-income countries all at around 11%, which include the Netherlands, Switzerland, Sweden, Germany and France. Almost half of OECD countries spend in a band between 8 and 10% of GDP on health services. Among OECD countries, Mexico and Estonia devoted around 6% of GDP to health – around two-thirds of the OECD average, while Turkey reported the lowest share at just over 5% of GDP. Among the key partner countries, China and India spent 5.6% and 4.0% of GDP respectively in 2013, while Brazil (9.1%) and South Africa (8.9%) spent close to the OECD average (all including investment).

The health spending to GDP ratio jumped sharply in 2009 to reach 9.0% on average – up from 8.3% in 2008 as overall economic conditions rapidly deteriorated but health spending continued to grow or was maintained in many countries. In the subsequent context of reducing public deficits, the subsequent reductions in (public) spending on health have resulted in the share of GDP first falling and since stabilising as health expenditure growth has become aligned to economic growth in many OECD countries (Figures 9.4, and 9.5).

The United States has seen its health spending to GDP ratio remain consistent at 16.4% since 2009, in contrast to the earlier steep rise whereby the share increased almost two percentage points between 2005 and 2009. Canada also experienced a steady rise through the second half on the 2000s to reach a peak in 2009. Since then, with health spending growth lower than economic growth, the share of GDP has gradually decreased. Japan, on the other hand, has seen its health spending share of GDP rise steadily from the OECD average in 2005 to continue increasing to more than 10% of GDP by 2013 as a result of a deliberate policy to increase public spending on health.

In Europe, France and Germany also have seen their health spending to GDP ratio stabilise since 2009 as health spending growth has aligned with economic growth. Other European countries, such as Portugal and Ireland saw health spending growth decline much more than GDP, resulting in a rapidly decreasing health spending to GDP ratio, after significant increase prior to 2009, as health spending significantly outpaced economic growth. Greece, where there have been significant cuts in health spending, has seen the health spending to GDP ratio fluctuate but overall remain at a similar level to the mid-2000s as the overall economy has suffered to the same extent.

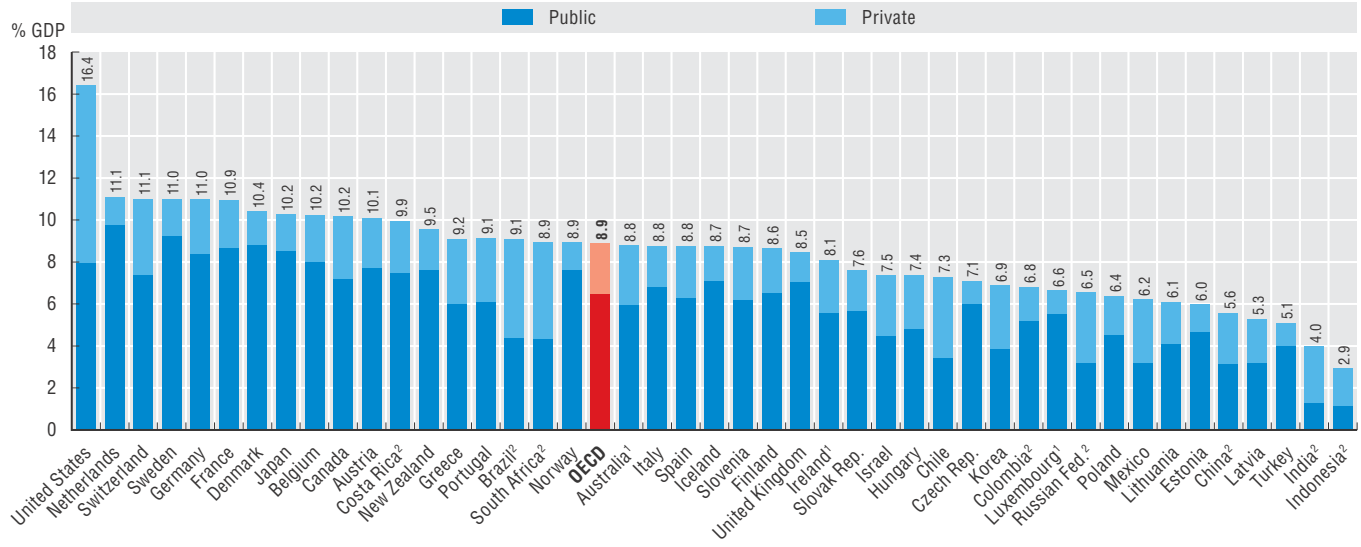
Definition and comparability

See indicator "Health expenditure per capita" for a definition of expenditure on health.

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.

9.3. Health expenditure as a share of GDP, 2013 (or nearest year)

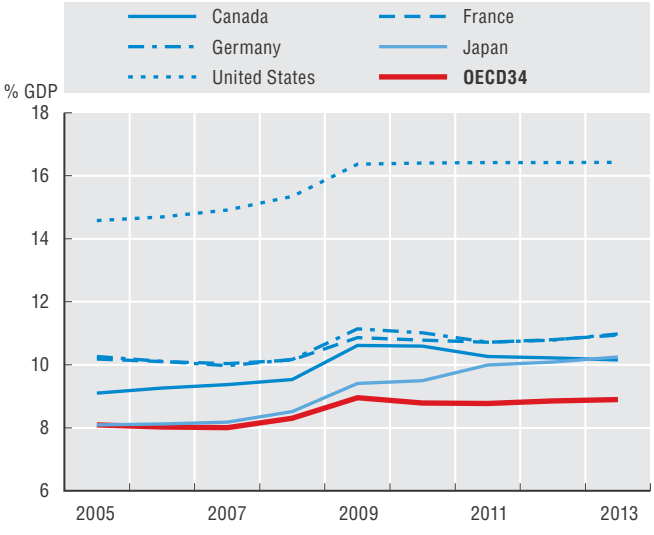


Note: Excluding investments unless otherwise stated.
1. Data refers to 2012.
2. Including investments.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en*; WHO Global Health Expenditure Database.

StatLink http://dx.doi.org/10.1787/888933281263

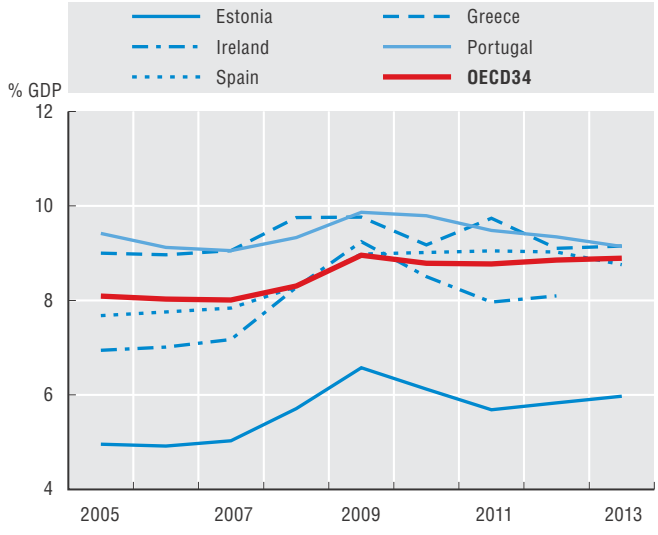
9.4. Health expenditure as a share of GDP, selected G7 countries, 2005-13



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281263

9.5. Health expenditure as a share of GDP, selected European countries, 2005-13



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281263

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Health expenditure by function

Spending on inpatient care and outpatient care combined covers the major part of health expenditure across OECD countries – almost two-thirds of current health expenditure on average in 2013 (Figure 9.6). A further 20% of health spending was allocated to medical goods (mainly pharmaceuticals), while 12% went towards long-term care and the remaining 6% on collective services, such as public health and prevention services as well as administration.

Greece has the highest share of spending on inpatient care (including day care in hospitals) among OECD countries: it accounted for 42% of total health spending in 2013, up from 36% in 2009, as a consequence of larger decreases in spending for outpatient care and pharmaceuticals. In Poland, France and Austria, the hospital sector also plays an important role, with inpatient spending comprising more than a third of total costs. While the United States consistently reports the highest share of outpatient care (and by consequence the lowest inpatient share), it should be noted that this figure includes remunerations of physicians who independently bill patients for hospital care. Other countries with a high share of outpatient spending include Portugal and Israel (48% and 46%).

The other major category of health spending is medical goods. In the Slovak Republic and Hungary, medical goods represent the largest spending category at 36% and 33% of all health expenditure, respectively. With around 30%, the share is also high in Greece and Mexico. In Denmark and Norway, on the other hand, spending on medical goods represents only 10-11% of total health spending.

There are also differences between countries in their expenditure on long-term care (see the indicator on "Long-term care expenditure" in Chapter 11). Countries such as Norway, the Netherlands, Sweden and Denmark which have established formal arrangements for the elderly and the dependent population, allocate around a quarter or more of total health spending to long-term care. In many southern or central European countries with a more informal long-term care sector, the expenditure on formal long-term care services accounts for a much smaller share of total spending.

The slowdown in health spending experienced in many OECD countries in recent years has affected all spending categories, but to varying degrees (Figure 9.7). Expenditure for pharmaceuticals has been cut annually by nearly 2% after recording positive annual increases of 2% in the pre-crisis years – still down on previously strong growth in pharmaceutical spending in the 1990s and early 2000s (see the indicator on "Pharmaceutical expenditure" in Chapter 10). Despite initially ring-fencing and protecting public health budgets, prevention spending turned negative in around half of OECD since 2009. Overall, spending on preventive care contracted by -0.3% on an annual basis, after recording very high growth rates during the period 2005-09 (5.6%). Part of the reversal in spending growth can be explained by the H1N1 influenza epidemic, which led to significant one-off expenditure for vaccination in many countries around 2009.

While spending on long-term, outpatient and inpatient care have continued to grow, the rates have also significantly reduced since 2009. Expenditure growth for outpatient care was reduced by more than half overall (1.7% vs. 3.9%), but has still remained positive in three quarters of OECD countries. Some governments decided to protect expenditure for primary care and front-line services whilst looking for cuts elsewhere in the health system. The annual average growth rate for hospital care dropped to a quarter of its previous growth rate, down from 2.4%, and was negative between 2009 and 2013 in a dozen OECD countries. Reducing wages in public hospitals, postponing staff replacement and delaying investment in hospital infrastructure were among the most frequent measures taken in OECD countries to balance health budgets.

Definition and comparability

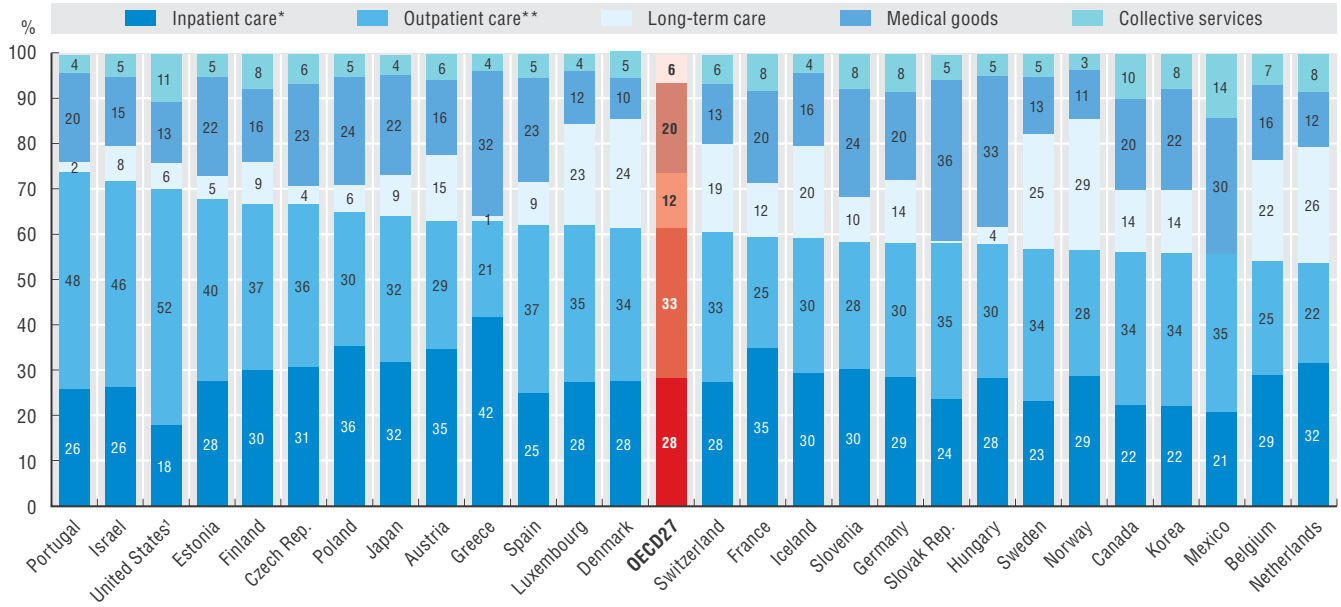
The *System of Health Accounts* (OECD, 2000; OECD, Eurostat and WHO, 2011) defines the boundaries of the health care system. Current health expenditure comprises personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration). Curative, rehabilitative and long-term care can also be classified by mode of production (inpatient, day care, outpatient and home care). Concerning long-term care, only the health aspect is normally reported as health expenditure, although it is difficult in certain countries to separate out clearly the health and social aspects of long-term care. Some countries with comprehensive long-term care packages focusing on social care might be ranked surprisingly low based on SHA data because of the exclusion of their social care. For example, an ongoing review of Japanese long-term care boundaries concerning SHA will likely lead to a significant increase in health spending based on SHA2011 to be released in 2016. Thus, estimations of long-term care expenditure are one of the main factors limiting comparability across countries.

References

OECD (2000), *A System of Health Accounts*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264181809-en*.

OECD, Eurostat and WHO (2011), *A System of Health Accounts, 2011 Edition*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264116016-en*.

9.6. Current health expenditure by function of health care, 2013 (or nearest year)



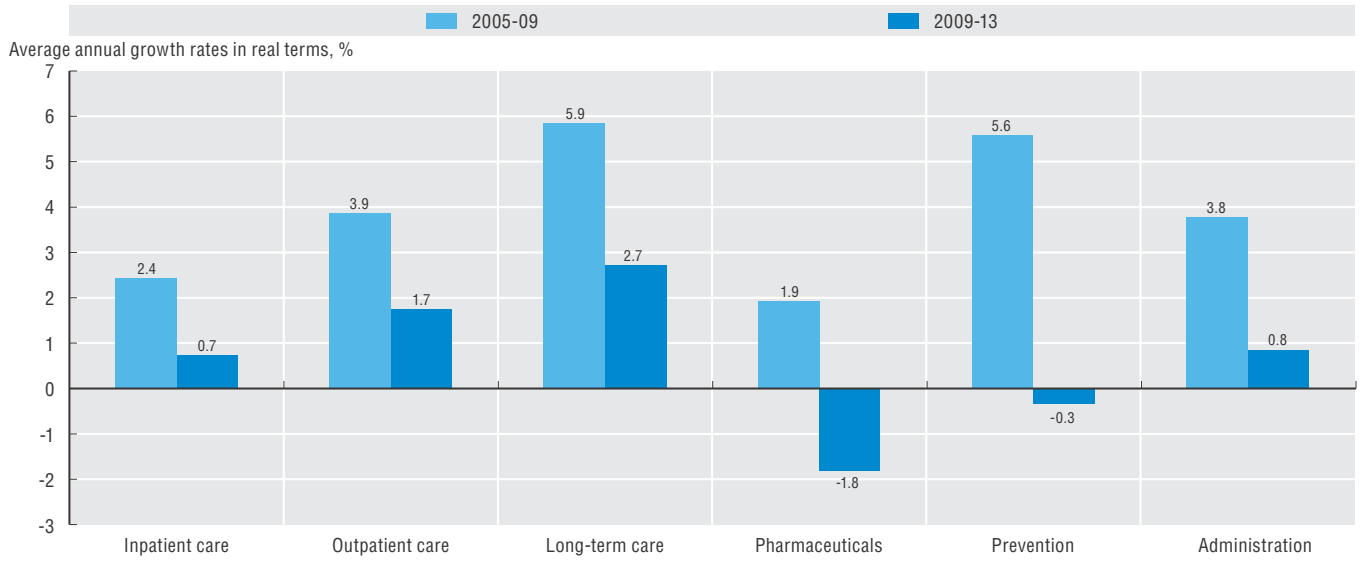
Note: Countries are ranked by curative-rehabilitative care as a share of current expenditure on health. * Refers to curative-rehabilitative care in inpatient and day care settings. ** Includes home-care and ancillary services.

1. Inpatient services provided by independent billing physicians are included in outpatient care for the United States.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281277

9.7. Growth rates of health spending for selected functions per capita, OECD average, 2005-13



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281277

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Financing of health care

Across all OECD countries, health care is financed by a mix of public and private spending. In some countries, public health spending is mostly confined to spending by the government using general revenues. In others, social insurance funds finance the bulk of health expenditure. Private financing of health care consists mainly of payments by households (either as standalone payments or as part of co-payment arrangements) as well as various forms of private health insurance.

In nearly all OECD countries, the public sector is the main source of health care financing. Around three-quarters of health care spending was publicly financed in 2013 (Figure 9.8). In Denmark, Sweden and the United Kingdom, central, regional or local governments financed more than 80% of all health spending. In the Czech Republic, France, Luxembourg, Japan and Germany, social health insurance financed 70% or more of all health expenditure. Only in Chile and the United States was the share of public spending on health below 50%. In these countries, a great proportion of health spending is financed either directly by households (Chile) or by private insurance (United States).

Health care is competing for public resources with different sectors such as education, defence and housing. The size of the public budget allocated to health is determined by a number of factors including the type of health and long-term care system, the demographic composition of the population and the relative budget priorities. On average, 15% of total government expenditure was dedicated to health care in 2013 (Figure 9.9). There are, however, important variations across OECD member states. Whereas a fifth of government spending is allocated to health care in countries such as New Zealand and Switzerland, this falls to around 10% in Hungary and Greece.

Developments in overall health spending are largely driven by the trends in public spending. Strong pre-crisis growth resulted in average public expenditure on health increasing at an annual rate of almost 4% (Figure 9.10). In 2010, growth in public health spending came to a halt with reductions in many countries. Since then spending growth has been very slow, often in line with overall economic growth.

After public financing, the main source of funding tends to be out-of-pocket payments. On average private households directly financed 19% of health spending in 2013. The share of out-of-pocket payments was above 30% in Mexico, Korea, Chile and Greece and 10% or lower in France and the United Kingdom. Out-of-pocket spending has continued to grow since 2009, albeit at a slower rate, partly as a result of cost-sharing measures introduced in a number of countries. Measures taken include increasing co-payments and raising reimbursement thresholds for pharmaceuticals, reducing benefits for dental treatment, increasing user charges for hospital care, introducing cost-sharing for certain activities in primary care and removing entitlements for public coverage for particular groups of the population.

Private health insurance (PHI) can play different roles in health systems. Whereas PHI provides primary health care coverage for large population groups in the United States and Chile, it complements or supplements public coverage for the vast majority of the population in countries such as France, Belgium and Slovenia. In other countries, such as Australia and Ireland, it serves as duplicate insurance providing access to a larger group of providers. Spending for PHI accounts for only 6% of overall health spending in the OECD, but it represents a sizeable share in a number of countries, particularly in the United States (35%) and Chile (20%). While health spending growth through private health insurance slowed down significantly in the period 2009-11, spending grew by 2.9% between 2011 and 2013 – also as a response to some cost-shifting and loss of coverage in some countries.

Definition and comparability

The financing of health care can be analysed from the point of view of the 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 in the sense of financing schemes as defined in the *System of Health Accounts* (OECD, 2000; OECD, Eurostat and WHO, 2011). Public financing includes expenditure by the general government 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 patients. They include cost-sharing and, in certain countries, estimations of informal payments to health care providers.

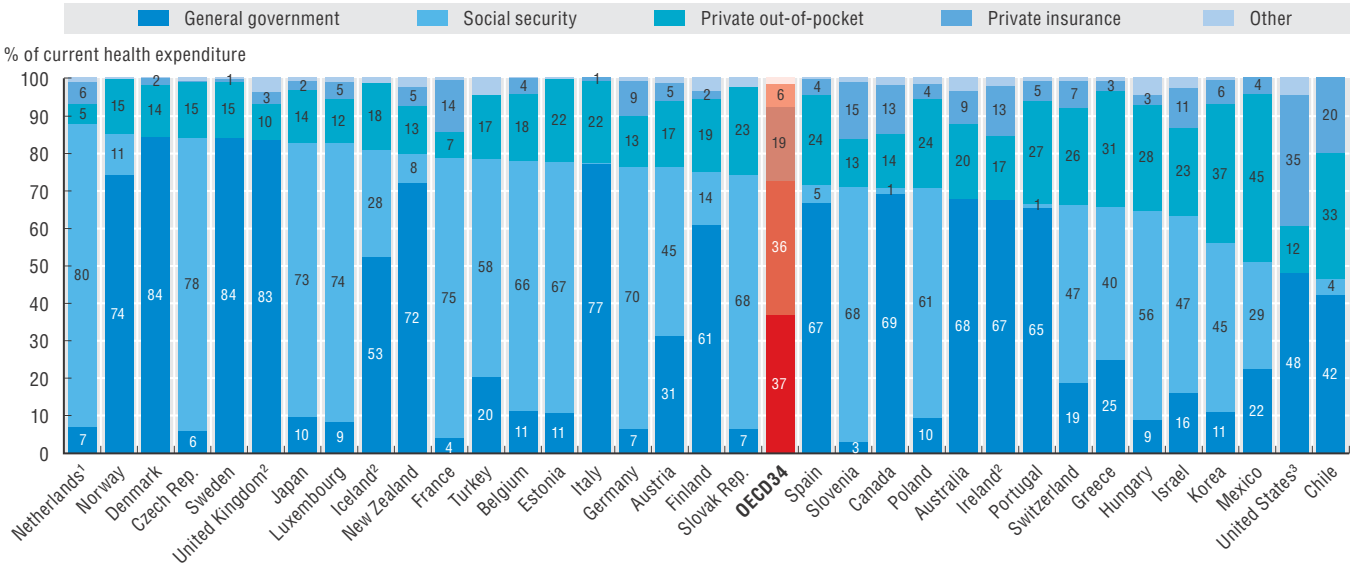
Total government expenditure is used as defined in the System of National Accounts and includes as major components intermediate consumption, compensation of employees, interest, social benefits, social transfers in kind, subsidies, other current expenditure and capital expenditure payable by central, regional and local governments as well as social security funds.

References

OECD (2000), *A System of Health Accounts*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264181809-en*.

OECD, Eurostat and WHO (2011), *A System of Health Accounts, 2011 Edition*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264116016-en*.

9.8. Expenditure on health by type of financing, 2013 (or nearest year)

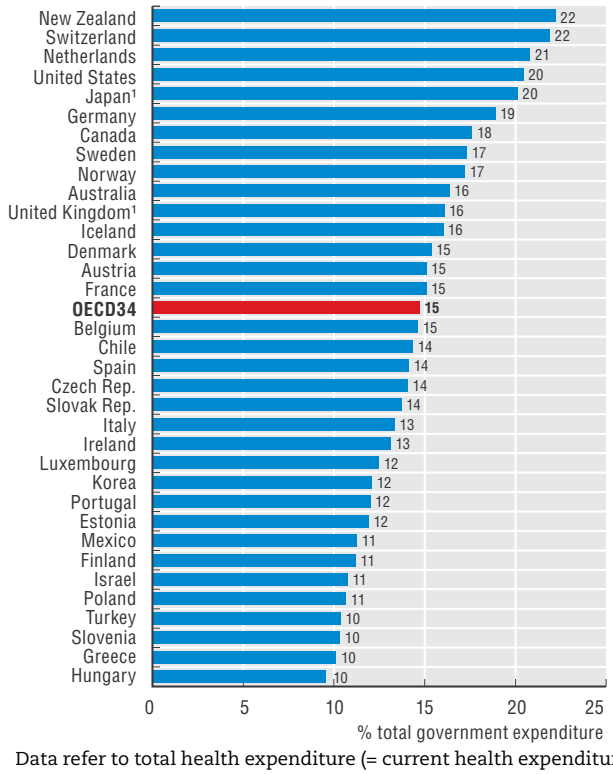


1. The Netherlands report compulsory cost-sharing in health care insurance and in Exceptional Medical Expenses Act under social security rather than under private out-of-pocket, resulting in an underestimation of the out-of-pocket share.
2. Data refer to total health expenditure (= current health expenditure plus capital formation).
3. Social security reported together with general government.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281280

9.9. Health expenditure as share of total government expenditure, 2013 (or nearest year)



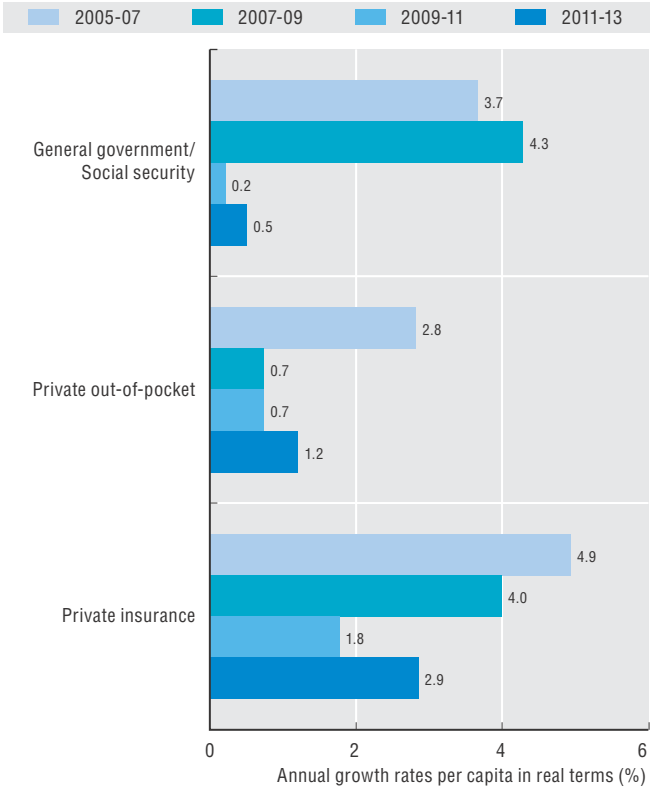
1. Data refer to total health expenditure (= current health expenditure plus capital formation).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en; OECD National Accounts; Eurostat Statistics Database; IMF World Economic Outlook Database.

StatLink http://dx.doi.org/10.1787/888933281280

Information on data for Israel: *http://oe.cd/israel-disclaimer*

9.10. Growth of health spending by financing, OECD average, 2005-2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281280

Expenditure by disease and age

Attributing health care expenditure by disease and age is important for health policy makers in order to analyse resource allocations in the health care system. This information can also play a role in assessing the impact of population ageing and changing disease patterns on spending. Furthermore, the linking of health expenditures by disease to appropriate measures of outputs (e.g. hospital discharges by disease) and outcomes (e.g. survival rates after heart attack or cancer) helps in monitoring the performance of health care systems at a disease-based level (Heijink et al., 2006).

Figure 9.11 shows the distribution of hospital inpatient expenditure according to seven main diagnostic categories. These categories account for between 60% and 80% of all inpatient acute care expenditure across the group of countries. Circulatory diseases account for the highest share of inpatient spending in each of the countries except for Korea and the Netherlands, where spending on cancer and mental and behavioural disorders is the largest category, respectively. The differences between countries can be influenced by a number of factors, including demographic structure and disease patterns, as well as institutional arrangements and clinical guidelines for treating different diseases. For example, in the Netherlands, mental and behavioral disorders account for around 23% of all inpatient spending – around twice the level as that of Germany, Finland and Japan. This may be partly explained by the large number of acute mental health hospitals with very long average lengths of stay (OECD, 2015). Similarly, longer than average lengths of stay in Japan for some of the specific circulatory diseases such as cerebrovascular disease (stroke) might explain why more than 22% of hospital inpatient expenditures are allocated to the treatment of circulatory diseases. Discharges related to circulatory diseases only account for 12% of all discharges in Japan – a proportion similar to other countries.

Figure 9.12 compares expenditure by hospital discharge for circulatory diseases and cancers. Generally, the cost per discharge between these two main disease categories is similar in all countries, apart from Japan where spending per discharge for circulatory diseases is more than twice that of cancer. Japan has the highest expenditure per discharge compared to the other countries for circulatory disease, again due to the much longer lengths of stay, while the Netherlands has the highest expenditure per discharge for cancer treatment.

Different cost patterns can also be due partly to demographic factors. The allocation of current health spending by age group in the Czech Republic, Korea and the Netherlands in Figure 9.13 shows that the share of spending increases with age after an initial peak of spending linked to birth and early childhood illnesses. The share of current health spending remains relatively constant until around the 50 to 54 age group before increasing sharply as people grow older. As a result, a significant share of current health spending is consumed by elderly population. Those aged 65 and above consume around 60% of the current health spending on average in all three countries. In addition, in Korea and the Netherlands more than 20% of current health spending is accounted for by those aged 85 years and above, while in the Czech Republic the share is much lower. This may be explained by a lower level of long-term care spending in Czech Republic.

Definition and deviations

Expenditure by disease and age allocates current health expenditure by patient characteristics. Guidelines developed propose disease categories according to ICD-10. To ensure comparability between countries, expenditures are also linked to the System of Health Accounts (SHA) framework and a common methodology is proposed advocating primarily a top-down allocation of expenditures based on principal diagnosis. The main comparability issues relates to the treatment of non-allocated and non-disease-specific expenditures. In the former case this is due to data limitations (often in outpatient and pharmaceutical expenditure) and in the latter case mainly prevention and administration expenditure.

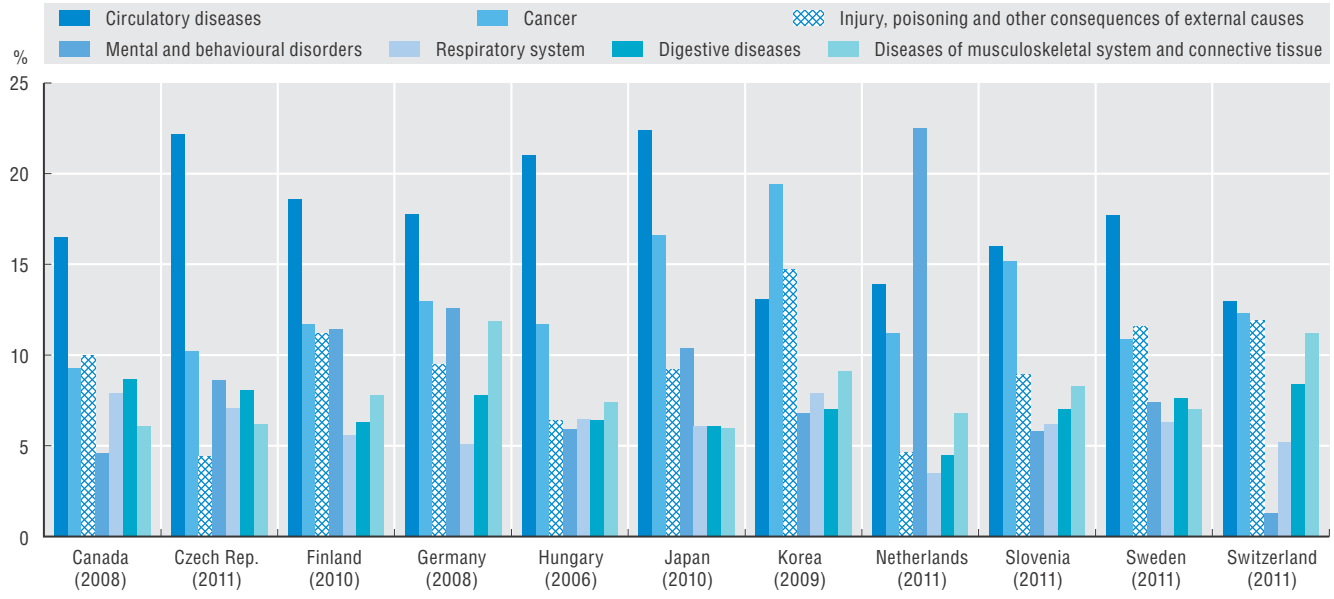
Note that the charts cover allocated spending only and the following country limitations apply. Canada excludes Quebec and mental health hospitals; the Czech Republic refers to expenditure by the Health Insurance Fund only; Germany refers to total hospital expenditure; and the Netherlands refers to curative care in general and specialty hospitals.

References

Heijink, R., M.A. Koopmanschap and J.J. Polder (2006), *International Comparison of Cost of Illness*, RIVM, Bilthoven.

OECD (2015), *Addressing Dementia: The OECD Response*, OECD Health Policy Studies, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264231726-en*.

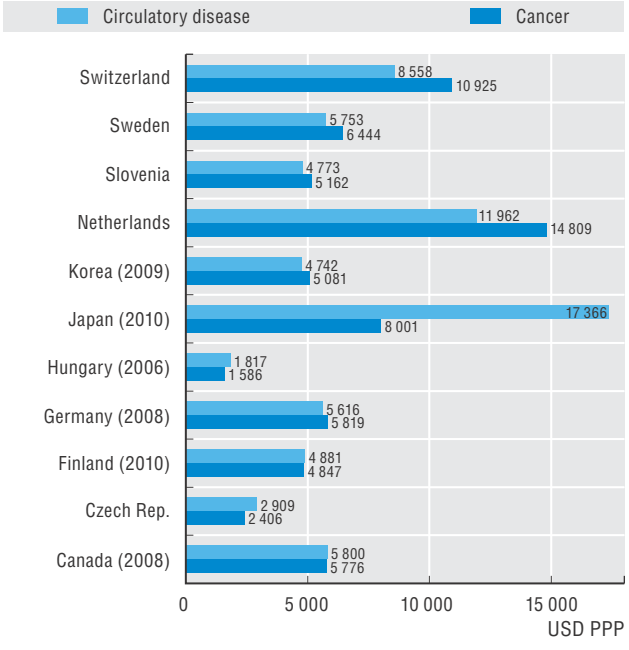
9.11. Share of hospital inpatient expenditures by main diagnostic category, 2011 (or nearest year)



Source: OECD Expenditure by Disease, Age and Gender Database.

StatLink http://dx.doi.org/10.1787/888933281298

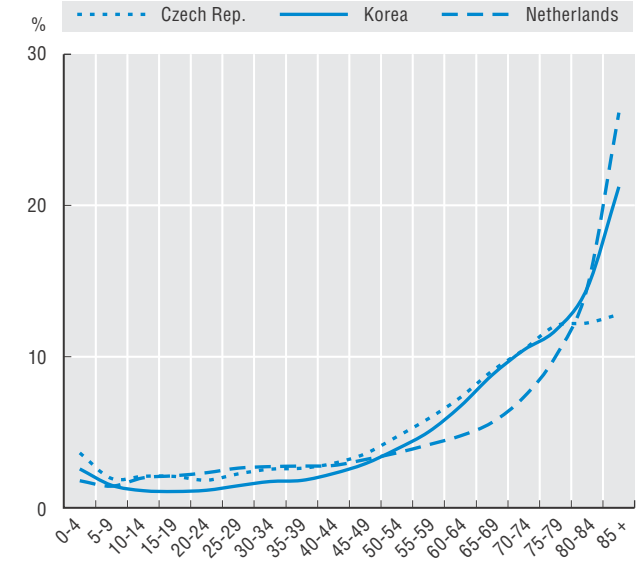
9.12. Expenditure per hospital discharge for two diagnostic categories, 2011 (or nearest year)



Source: OECD Expenditure by Disease, Age and Gender Database.

StatLink http://dx.doi.org/10.1787/888933281298

9.13. Share of current health spending by age group, 2011 (or nearest year)



Source: OECD Expenditure by Disease, Age and Gender Database.

StatLink http://dx.doi.org/10.1787/888933281298

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Capital expenditure in the health sector

Knowing how much a health system is investing in hospitals, medical technology and other equipment is very relevant for policy making and analysis. Although health systems remain a highly labour-intensive sector, capital has been increasingly important as a factor of production of health services over recent decades. This is illustrated, for example, by the growing importance of diagnostic and therapeutic equipment or the expansion of information, computer and telecommunications technology in health care over the last few years. The availability of statistics on capital expenditure is essential to the analysis of the health system's production capacity (that is, whether capacity is appropriate, deficient or excessive), which is needed in turn to inform policy implementation (for example, if excess capacity exists, the marginal cost of expanding coverage will be lower than if the health care system is already straining to fill current demand).

On average, OECD countries invested around 0.45% of their GDP in 2013 in terms of *capital* spending in the health sector. This compares with 8.9% of GDP on average across the OECD for *current* spending on health care services and medical goods (see the indicator on "Health expenditure in relation to GDP"). As with current spending, there are both differences in the current levels of investment expenditure between countries and in the recent trends observed.

At the higher end of the scale, Belgium spent more than 0.8% of GDP on capital investment in 2013, followed by a group of countries, including France, Germany and the United States, all spending more than 0.6% of GDP. Around half the OECD countries are in a relatively narrow band of plus or minus 25% of the average ranging from the United Kingdom to Australia. At the lower end, Turkey, Chile and Hungary spent around half the OECD average, while Greece, Iceland and Mexico spent around 0.1% of GDP on capital infrastructure and equipment in the health care sector.

Data from National Accounts provides an idea of the type of assets and capital spending. While capital spending can fluctuate from year to year, overall in the health sector there is an even split between spending on construction (i.e. building of hospitals and other health care facilities) and spending on equipment (medical machinery, ambulances, as well as ICT equipment). Together they account for 85% of capital expenditure. The remaining 15% is accounted for by intellectual property products – the result of research, development or innovation. This can vary significantly between countries.

In parallel with current health spending, capital spending has been affected by the global economic crisis with outlays on health system infrastructure and equipment often being a prime target for reduction or postponement. Overall, capital spending grew strongly in the period up to 2008 – annual capital expenditure was 22% higher than in 2005 in real terms on average. During the next three years, the annual outlay fell back by almost 15%. Since 2011, there has been a return to growth in capital spending (Figures 9.15 and 9.16).

The country differences also mirror the trends in current spending. Outside of Europe, investment in the health sector has been generally less affected by the economic downturn. Australia and Korea, for example, report capital spending more than 40% higher in 2013 compared with 2005.

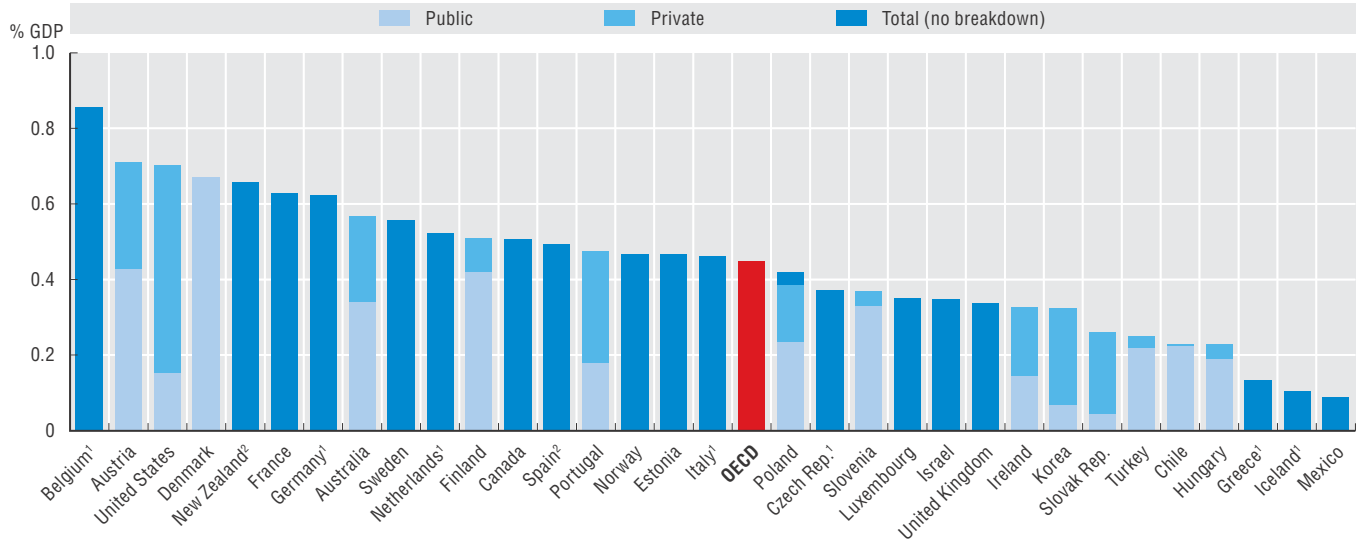
A number of European countries have seen severe reductions in capital spending. Figures for Greece show that the outlay was less than 40% of the 2005 level in 2013, with an acceleration of the fall in 2010. Similarly, Spain experienced a sharp reversal after 2008, with capital spending in 2012 at half the level of 2005.

Definition and comparability

Gross fixed capital formation in the health care system is measured by the total value of the fixed assets that health providers have acquired during the accounting period (less the value of the disposals of assets) and that are used repeatedly or continuously for more than one year in the production of health services. The breakdown by assets includes infrastructure (e.g. hospitals, clinics, etc.), machinery and equipment (including diagnostic and surgical machinery, ambulances, and ICT equipment), as well as software and databases.

Gross fixed capital formation is reported by many countries under the System of Health Accounts. It is also reported under the National Accounts broken down by industrial sector according to the International Standard Industrial Classification (ISIC) Rev. 4 using Section Q: Human health and social work activities or Division 86: Human health activities. The former is normally broader than the SHA boundary while the latter is narrower.

9.14. Gross fixed capital formation in the healthcare sector as a share of GDP, 2013 (or nearest year)

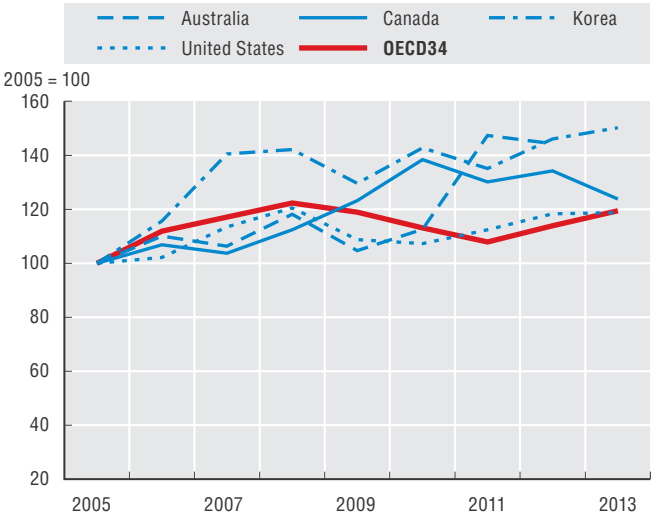


1. Refers to gross fixed capital formation in ISIC 86: Human health activities (ISIC Rev. 4).
2. Refers to gross fixed capital formation in ISIC Q: Human health and social work activities (ISIC Rev. 4).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en; OECD National Accounts Database.

StatLink http://dx.doi.org/10.1787/888933281305

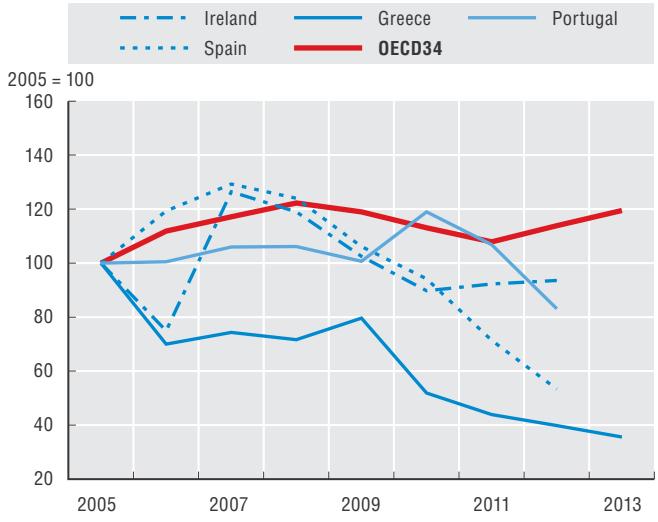
9.15. Gross fixed capital formation, selected non-European countries, 2005-13



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281305

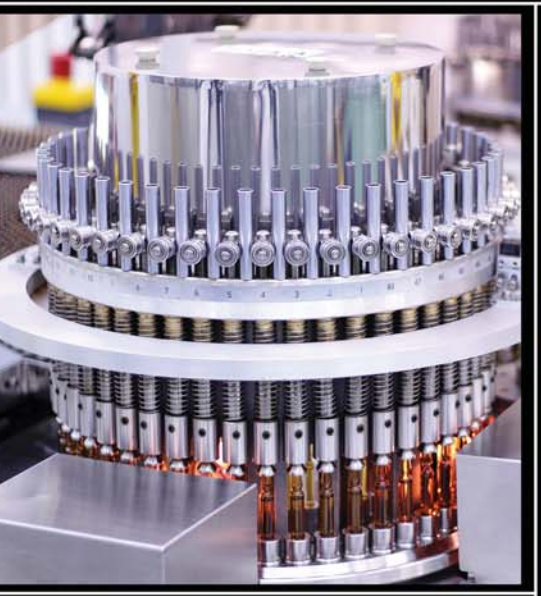
9.16. Gross fixed capital formation, selected European countries, 2005-13

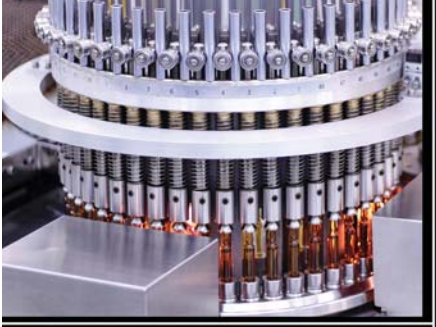


Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281305

Information on data for Israel: *http://oe.cd/israel-disclaimer*





10. PHARMACEUTICAL SECTOR

Pharmaceutical expenditure

Financing of pharmaceutical expenditure

Pharmacists and pharmacies

Pharmaceutical consumption

Share of generic market

Research and development in the pharmaceutical sector

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Pharmaceutical expenditure

Pharmaceuticals play a vital role in the health system and policy makers must balance the access of patients to new effective medicines with limited health care budgets, while providing the right incentives to manufacturers to develop new generations of drugs. After inpatient and outpatient care, pharmaceuticals represent the third largest expenditure item of health care spending and accounted for more than a sixth (17%) of health expenditure on average across OECD countries in 2013, not taking into account spending on pharmaceuticals in hospitals.

The total retail pharmaceutical bill across OECD countries was around USD 800 billion in 2013. However, there are wide variations in pharmaceutical spending per capita across countries, reflecting differences in volume, patterns of consumption and pharmaceutical prices (Figure 10.1). With more than USD 1 000 in 2013, the United States spent far more on pharmaceuticals than any other OECD country on a per capita basis, and double the OECD average. Japan (USD 752), Greece (USD 721) and Canada (USD 713) also spent significantly more on medicines than other OECD countries. At the other end of the scale, Denmark (USD 240) had relatively low spending levels, less than half the average across OECD countries. It is important to note that these figures refer only to retail pharmaceuticals, that is, pharmaceuticals dispensed directly to patients with a medical prescription or over-the-counter purchases. Pharmaceuticals can also be administered to patients when they are in hospital, but these are not taken into account here. Figures available for a small number of OECD countries suggest that this can add another 10-20% on average to the retail spending, but can vary according to different dispensing and budgetary practices (Belloni et al., forthcoming).

Around 80% of total retail pharmaceutical spending is for prescribed medicines; the rest being spent on over-the-counter (OTC) medicines. OTC medicines are pharmaceuticals that can be bought without prescription and their costs are generally borne by patients. In some cases, however, OTC drugs can also be reimbursed by public payers. Depending on country-specific legislation, OTC pharmaceuticals can be sold outside of pharmacies, for example, in supermarkets, other retail stores or via the internet. In Australia, Spain and Poland, the share of OTC medicines is relatively high – in the latter case accounting for half of pharmaceutical spending.

During the 1990s and early 2000s, increasing spending on retail pharmaceuticals acted as a major contributor in driving up overall health expenditure (Figure 10.2). Average real annual growth in pharmaceutical spending outpaced overall health spending growth – more than 5% on average each year between 1990 and 2004, compared with average health spending growth of less than 4% per year. However, in the second half of the 2000s there was a significant drop in average pharmaceutical spending growth which then intensified following the global economic crisis. In this period, policy makers in many OECD countries were concerned about reining in public pharmaceutical spending in an effort to limit total public spending (see Indicator "Financing of pharmaceutical expenditure"). Thus, a number of countries introduced a series of measures: price cuts (achieved through negotiations with the pharmaceutical manufacturers, introduction of reference pricing, application of compulsory rebates, decrease of pharmacy margins, reductions of the value added tax applicable for pharmaceuticals), promoting the use of generics, reduction of package sizes, reduction in coverage (excluding pharmaceuticals from reimbursement) and increases in co-payments by households.

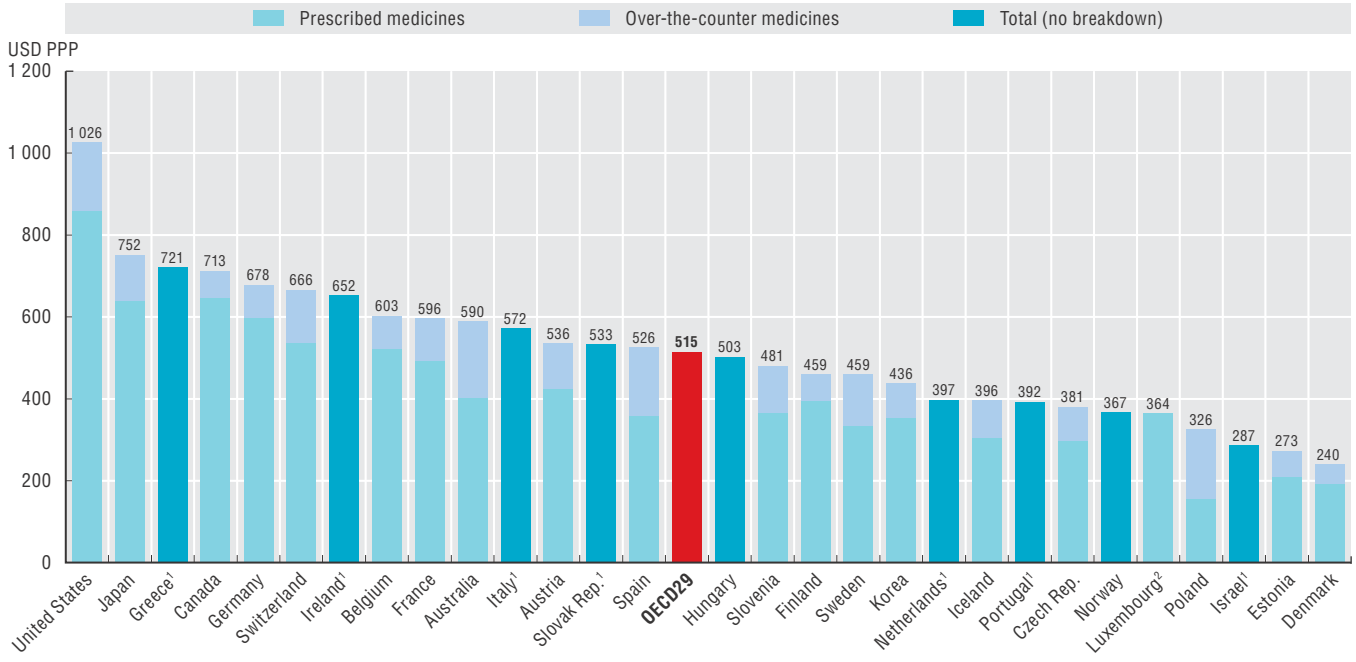
Definition and comparability

Pharmaceutical expenditure covers spending on prescription medicines and self-medication, often referred to as over-.the-counter products. In some countries, other medical non-durable goods are also included. Pharmaceuticals consumed in hospitals and other health care settings are excluded. Final expenditure on pharmaceuticals includes wholesale and retail margins and value-added tax. It also includes pharmacists' remuneration when the latter is separate from the price of medicines. Total pharmaceutical spending refers in most countries to "net" spending, i.e. adjusted for possible rebates payable by manufacturers, wholesalers or pharmacies.

References

Belloni, A., D. Morgan and V. Paris (forthcoming), "Pharmaceutical Expenditure and Policies: Past Trends and Future Challenges", *OECD Working Paper*, OECD Publishing, Paris.

10.1. Expenditure on pharmaceuticals per capita, 2013 (or nearest year)

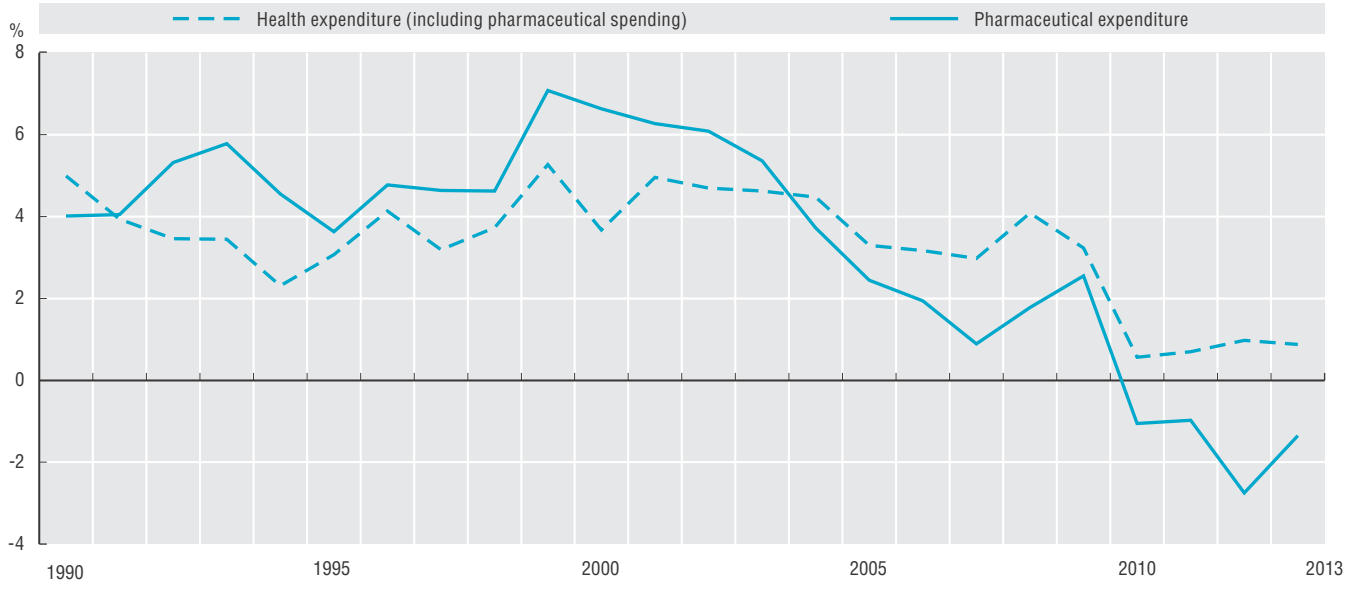


1. Includes medical non-durables (resulting in an over-estimation of around 5-10%).
2. Excludes spending on over-the-counter medicines.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281318

10.2. Average annual growth in pharmaceutical and total health expenditure per capita, in real terms, average across OECD countries, 1990 to 2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281318

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Financing of pharmaceutical expenditure

In all OECD countries, pharmaceuticals are financed by a mix of public and private spending. Tax-funded schemes or social health insurance cover a significant amount of prescribed pharmaceuticals in most countries, sometimes complemented by private health insurance. Patients typically have to cover some part of the cost of prescription drugs themselves, although exemptions often exist for vulnerable segments of the population such as children, the elderly and patients suffering from certain chronic illnesses. Over-the-counter (OTC) pharmaceuticals are normally financed entirely by private households.

Pharmaceutical spending represents around 1.4% of GDP on average across OECD countries ranging from 0.5% in Denmark to 2.8% in Greece (Figure 10.3). Public funds represent slightly less than 60% on average – just under 1% of GDP across OECD countries. However, this share is significantly higher in Japan (1.5%) and Greece (1.9%) and much lower in Denmark and Norway (both 0.3%). The proportion of private expenditure in GDP is highest in Hungary and the United States (both 1.3%), and also high in Canada (1.0%).

Public protection against the costs of pharmaceuticals is not as developed as for other health services, such as inpatient and outpatient care (Figure 10.4). On average across OECD countries, the public sector covered a much higher proportion of the costs of health services (79%) compared with pharmaceuticals (57%) in 2013. This is true for all countries with the exception of Greece where public coverage for pharmaceuticals is higher (67% vs. 64%). Public coverage for pharmaceuticals is high in countries such as France, Japan and Germany where coverage by public financing schemes accounts for 70% or more of total costs. Private sources have to cover more than half of the total pharmaceutical bill in eight OECD countries, with public coverage being the lowest in Poland (32%), the United States (34%) and Canada (36%). However, in the United States and Canada, private health insurance plays a significant role in covering parts of the pharmaceutical costs for patients. Poland reports large spending on privately financed OTC pharmaceuticals.

The growth in public spending on pharmaceuticals has remained below total health spending growth over the last decade (see Indicator "Pharmaceutical expenditure") with recent growth rates in sharp decline as compared to pre-crisis years (Figure 10.5). Between 2009 and 2013, public expenditure on pharmaceuticals dropped by 3.2% on average across OECD countries while it increased by 2.7% each year in the 2005-09 period. The reduction was particularly steep in Portugal (-11.1%), Denmark (-10.4%) and Iceland (-9.9%). Greece and the Netherlands have also seen significant reversals in growth of public pharmaceutical spending following the crisis compared to the pre-crisis period. The reduction in public spending on pharmaceuticals has not been restricted to Europe. Public spending also came down in Canada and Australia (both -2.1%). Japan, on the other hand, continues to see substantial annual increases (4.9%).

Reduction of public pharmaceutical spending in most OECD countries was achieved by a wide range of policy measures (see Indicator "Pharmaceutical expenditure"), including reforms that have aimed to shift some of the burden of pharmaceutical spending away from the public purse to private payers. These measures included the delisting of products (i.e. excluding them from reimbursement) and the introduction or increase of user charges for retail prescription drugs (Belloni et al., forthcoming). In recent years, measures of this kind have been taken by around a dozen OECD countries. Ireland, for example, introduced a 50-cent prescription fee for Medical Card holders in 2010 which was subsequently increased. At the same time, the monthly drug reimbursement threshold was raised by 20% to EUR 120 for non-Medical Card holders, followed by subsequent increases. As a result of these policy measures, the share of private financing of pharmaceuticals has increased substantially in a number of countries. In Spain, 39% of pharmaceutical costs were covered out-of-pocket in 2013, up from 24% in 2009. In Greece and Iceland, the proportion of pharmaceutical spending paid for by households directly went up by 10 percentage points or more since 2009.

Definition and comparability

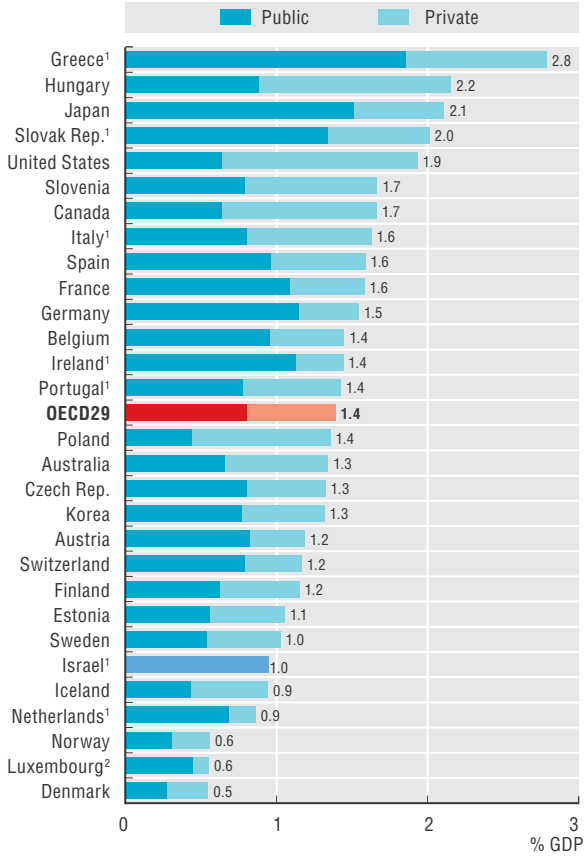
See indicator on pharmaceutical expenditure for definition of what is included and possible limitations. See indicator on financing of health care for definition of "public" and "private" spending on health.

Health services refer to inpatient and outpatient care (including day cases), long-term health care and auxiliary services.

References

Belloni, A., D. Morgan and V. Paris (forthcoming), "Pharmaceutical Expenditure and Policies: Past Trends and Future Challenges", *OECD Working Paper*, OECD Publishing, Paris.

10.3. Expenditure on pharmaceuticals as a share of GDP, 2013 (or nearest year)

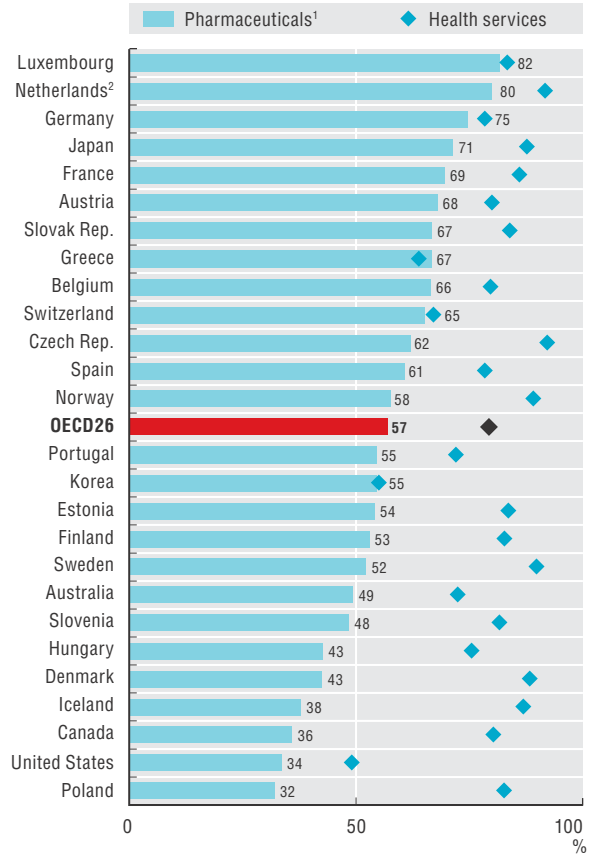


1. Includes medical non-durables.
2. Excludes spending on over-the-counter medicines.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281325

10.4. Public share of expenditure on health services and goods, 2013 (or nearest year)

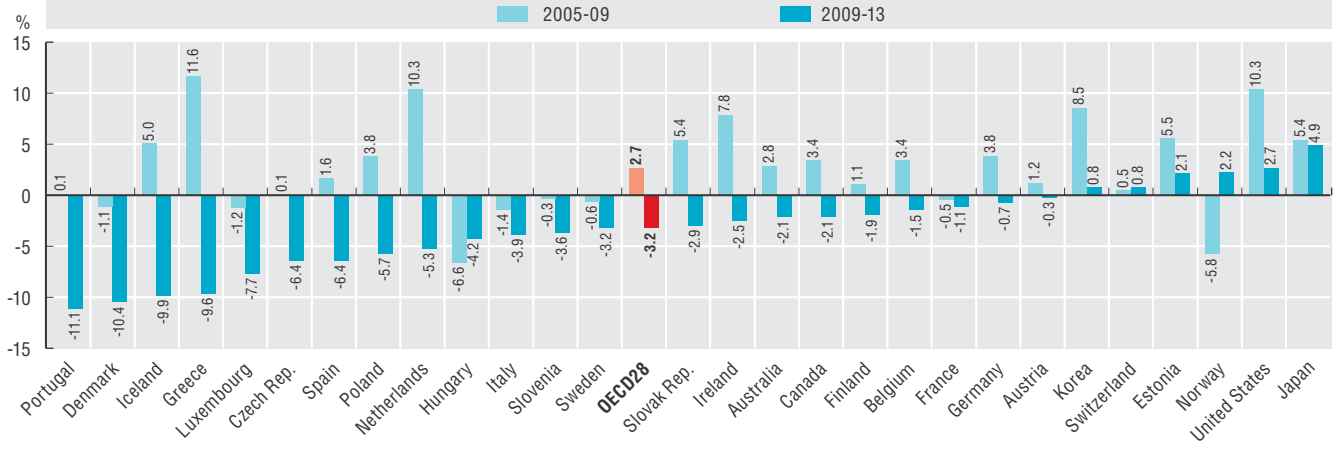


1. Includes medical non-durables.
2. The shares for the Netherlands are overestimated as they include compulsory co-payments by patients to health insurers.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281325

10.5. Average annual growth in public pharmaceutical expenditure[1] per capita, in real terms, 2005-09 and 2009-13 (or nearest periods)



1. Includes medical non-durables.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281325

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Pharmacists and pharmacies

Pharmacists assist people in obtaining medication and ensuring that these are used in a safe and proper fashion. The role of the pharmacists has changed over the recent years. Although their main role is still to dispense medications in community pharmacies, pharmacists are increasingly providing direct care to patients (e.g. flu vaccinations in Ireland), both in community pharmacies and as part of integrated health care provider teams.

OECD countries generally have between 50 and 130 pharmacists per 100 000 population. Japan has by far the highest density of pharmacists, at twice the OECD average, while the density of pharmacists is low in Turkey, Chile and the Netherlands (Figure 10.6). Between 2000 and 2013, the number of pharmacists per capita has increased in nearly all OECD countries, with the exception of Switzerland. It increased most rapidly in Portugal, Ireland, Japan, Spain and Hungary.

In Japan, the strong increase in the number of pharmacists can be attributed to a large extent to government's efforts to separate more clearly drug prescribing from drug dispensing. Traditionally, the vast majority of prescription drugs in Japan were dispensed directly by doctors. Over the years, the Japanese government has taken steps to encourage the separation of drug prescribing from dispensing. The Medical Service Law was first amended in 1997 and then in 2006 to recognise community pharmacies as facilities providing health goods and services. Following these amendments, the percentage of prescriptions dispensed by pharmacists rose from less than 40% of all prescriptions in 2000 to 67% in 2013, while the number of community pharmacies increased from 48 252 to 57 071 (Japanese Pharmaceutical Association, 2015).

Most pharmacists work in community pharmacies, but some also work in hospital, industry, research and academia (FIP, 2015). For instance, in Canada in 2012, more than three-quarters of practising pharmacists worked in a community pharmacy while about 25% worked in hospitals and other health care facilities (CIHI, 2013). In Japan, around 55% of pharmacists worked in community pharmacies in 2012, while around 20% worked in hospitals or clinics and the other 25% worked in other settings (Japanese Pharmaceutical Association, 2015).

The number of community pharmacies varies widely across OECD countries (Figure 10.7). This big variation can be explained by the more or less active planning role of governments and agencies; by the remuneration model used in the country, as well as by different dispensing channels of medicines. In addition to community pharmacies, medicines can be dispensed through hospital pharmacies (serving both inpatients and outpatients) or can be provided directly by doctors in a few countries. For example, the relatively low number of community pharmacies in the Netherlands may be explained partly by the fact that patients can also purchase their prescription drugs directly from some doctors (Vogler et al., 2012). There are about 400 GPs who are selling medicines in the Netherlands, providing access to drugs especially in rural areas where the nearest pharmacy may be quite far away (RIVM, 2014). Denmark has few, but large, community pharmacies including branch pharmacies and supplementary pharmacy units attached to the main pharmacy (Vogler et al., 2012).

The range of products and services provided by the pharmacies varies across countries. In most European countries, for example, pharmacies can also sell cosmetics, food supplements, medical devices and homeopathic products and in a few countries pharmacies can also sell reading glasses and didactic toys (Martins et al., 2015). Depending on countries' legislation, pharmacies can provide services such as vaccination, medication use review, unit dose dispensing, generic substitution, point of care testing, medication administration, needle exchange programme, take back medicines (disposal of medicines), etc.

Definition and comparability

Practicing pharmacists are defined as the number of pharmacists who are licensed to practice and provide direct services to clients/patients. They can be either salaried or self-employed, and work in community pharmacies, hospitals and other settings. Assistant pharmacists and the other employees of pharmacies are normally excluded.

In Ireland, the figures include all pharmacists registered with the Pharmaceutical Society of Ireland, possibly including some pharmacists who are not in activity. In addition they include assistant pharmacists, pharmaceutical assistants, and doctors who are dispensing medication (approximately 140 in 2007), resulting in an over-estimation compared with the data provided by other countries. Assistant pharmacists are also included in Iceland.

Community pharmacies are premises which in accordance to the local legal provisions and definitions may operate as a facility in the provision of pharmacy services in the community settings. The number of community pharmacies reported are the number of premises where dispensing of medicines happened under the supervision of a pharmacist.

References

CIHI – Canadian Institute for Health Information (2013), *Pharmacist Workforce, 2012 – Provincial/Territorial Highlights*, Ottawa, Canada.

FIP – International Pharmaceutical Federation (2015), *Global Trends Shaping Pharmacy – Regulatory Frameworks, Distribution of Medicines and Professional Services*, The Hague.

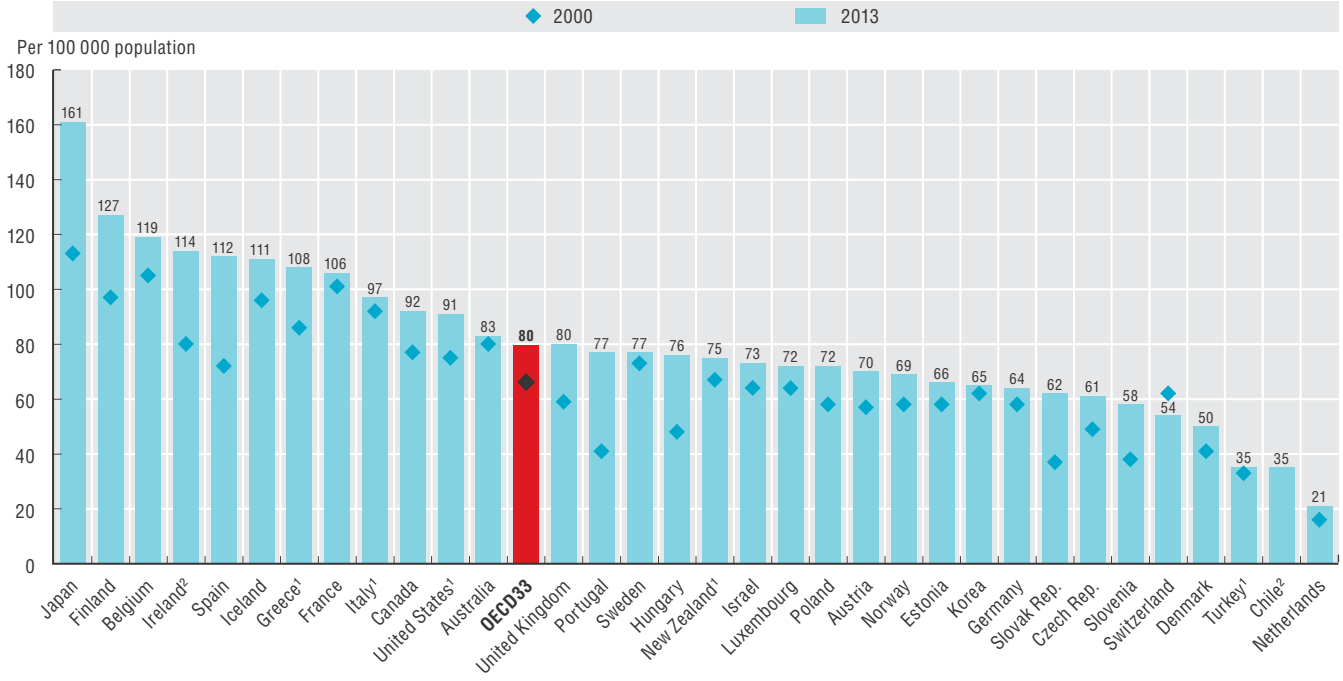
Japan Pharmaceutical Association (2015), *Annual Report of JPA 2014-2015*, Tokyo.

Martins, S.F. et al. (2015), "The Organizational Framework of Community Pharmacies in Europe", *International Journal of Clinical Pharmacy*, May 28.

RIVM – National Institute for Public Health and the Environment (2014), *The Dutch National Atlas of Public Health*, Bilthoven.

Vogler, S. et al. (2012), "Impact of Pharmacy Deregulation and Regulation in European Countries", Vienna.

10.6. Practising pharmacists, 2000 and 2013 (or nearest year)

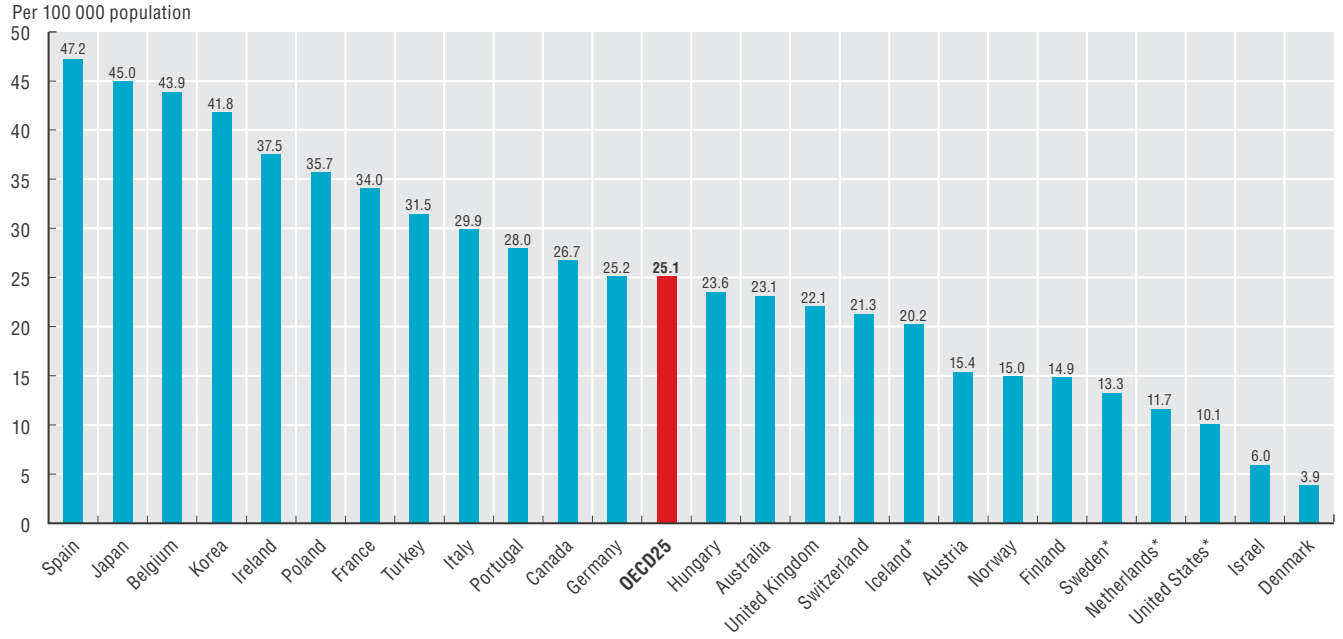


1. Data include not only pharmacists providing direct services to patients, but also those working in the health sector as researchers, for pharmaceutical companies, etc.
2. Data refer to all pharmacists licensed to practice (resulting in a large over-estimation of the number of practising pharmacists).

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281337

10.7. Community pharmacies, 2015 (or nearest year)



* Estimates.

Source: FIP (2015), *Global Trends Shaping Pharmacy – Regulatory Frameworks, Distribution of Medicines and Professional Services*. 2013-1015.

StatLink http://dx.doi.org/10.1787/888933281337

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Pharmaceutical consumption

In general, pharmaceutical consumption continues to increase, partly driven by a growing demand for drugs to treat ageing-related and chronic diseases and by changes in clinical practice. This section examines consumption of four categories of pharmaceuticals: antihypertensive, cholesterol-lowering, antidiabetic and antidepressant drugs. Consumption is measured in defined daily doses (DDD) (see the box on "Definition and comparability").

Consumption of antihypertensives has nearly doubled in OECD countries between 2000 and 2013. It has more than tripled in Estonia and quadrupled in Luxembourg (Figure 10.8). It is highest in Germany and Hungary, almost five-fold the level of Korea and Turkey. These variations reflect both differences in the prevalence of high-blood pressure and in clinical practice. In 2008, 16% of the Korean population had high blood pressure, against 26% in Germany and 37% in Hungary, while the average number of DDD prescribed per patient with high blood pressure was lower in Korea (0.5) than in Hungary (1.1) and Germany (1.2) (OECD, 2015).

The use of cholesterol-lowering drugs has more than tripled in OECD countries between 2000 and 2013 (Figure 10.9). The Slovak Republic, the United Kingdom and Australia had the highest consumption per capita in 2013, with levels over 40% higher than the OECD average. Prescription clinical guidelines for anti-cholesterol treatments have been updated several times since the 1990s, recommending wider screening, earlier treatments, and higher dosages. This explains part of the high growth observed during the period.

The use of antidiabetics has almost doubled in OECD countries between 2000 and 2013 (Figure 10.10). This growth can be explained by a rising prevalence of diabetes, largely linked to increases in the prevalence of obesity (see indicator on overweight and obesity in Chapter 4), a major risk factor for the development of type-2 diabetes. In 2013, the consumption of antidiabetics was highest in Finland, Germany and the United Kingdom.

Consumption of antidepressants has increased considerably in most OECD countries since 2000 (Figure 10.11). This might reflect some narrowing of the treatment gap for depression. However, there is significant variation in consumption of antidepressants between countries. Iceland reported the highest level of consumption of antidepressants in 2013, twice the OECD average, followed by Australia, Portugal and Canada. Chile, Korea and Estonia reported low consumption levels.

The level of antidepressants consumption depends on the prevalence of depression in each country, and on how depression is diagnosed and treated. This, in turn, depends on other available therapies, local guidelines, and prescribing behavior (OECD, 2014; Moore et al., 2009). These factors vary between countries. In England and in France, the increase in antidepressants consumption has been associated with a longer duration of drug treatment (Grandfils and Sermet, 2009; Moore et al., 2009).

Where antidepressants consumption is very low – Korea, Chile, Estonia – there may be a case for addressing unmet needs. In other countries with particularly high antidepressants consumption, there is a need to assess the appropriateness of prescribing patterns, and the availability of alternative treatments for depression.

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*.

The volume of hypertension drugs consumption presented in Figure 10.8 refers to the sum of five ATC2 categories which can all be prescribed against hypertension (antihypertensives, diuretics, beta-blocking agents, calcium channel blockers and agents acting on the renin-angiotensin system).

Data generally refer to outpatient consumption only, except for the Czech Republic, Estonia, Italy and Sweden where data also include hospital consumption. The data for Canada relate to three provinces only (British Columbia, Manitoba and Saskatchewan). The data for Spain refer to outpatient consumption for prescribed drugs covered by the National Health System (public insurance). Data for Luxembourg are underestimated due to incomplete consideration of products with multiple active ingredients.

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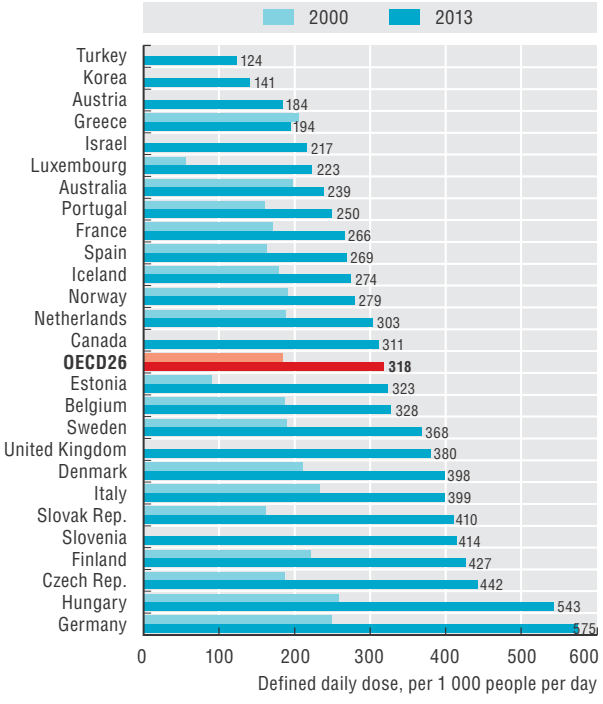
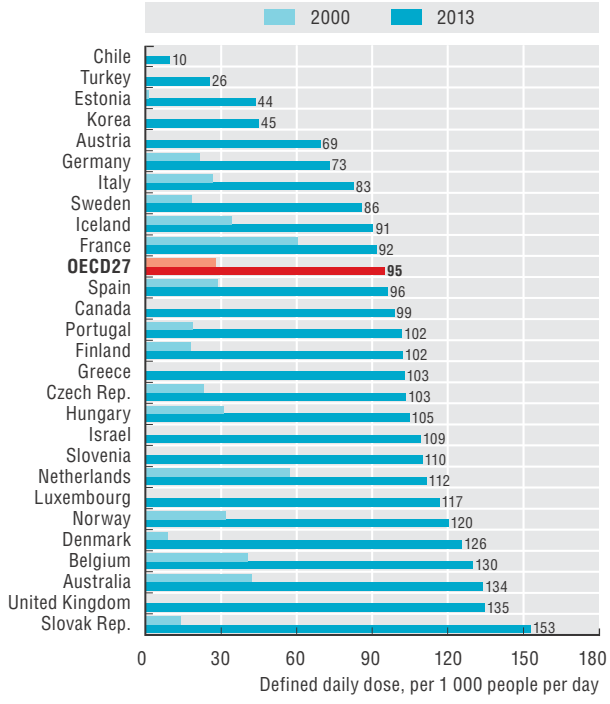
10.8. Antihypertensive drugs consumption, 2000 and 2013 (or nearest years)



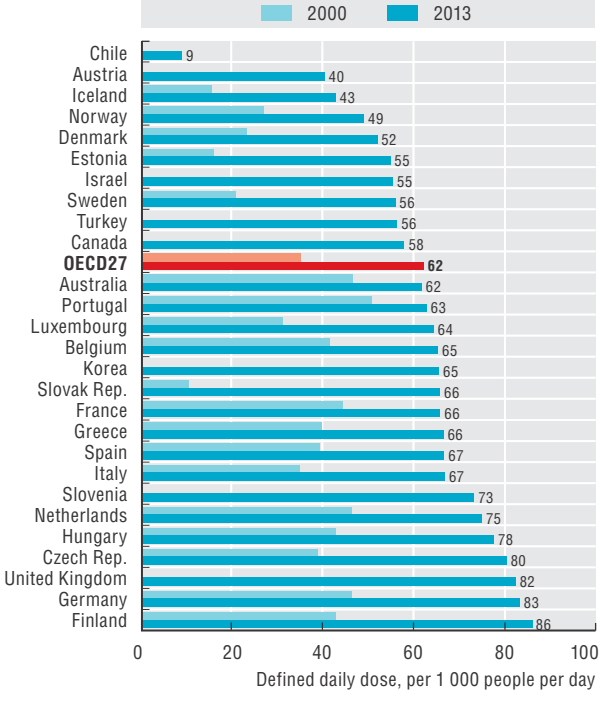
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281342

10.9. Cholesterol-lowering drugs consumption, 2000 and 2013 (or nearest years)



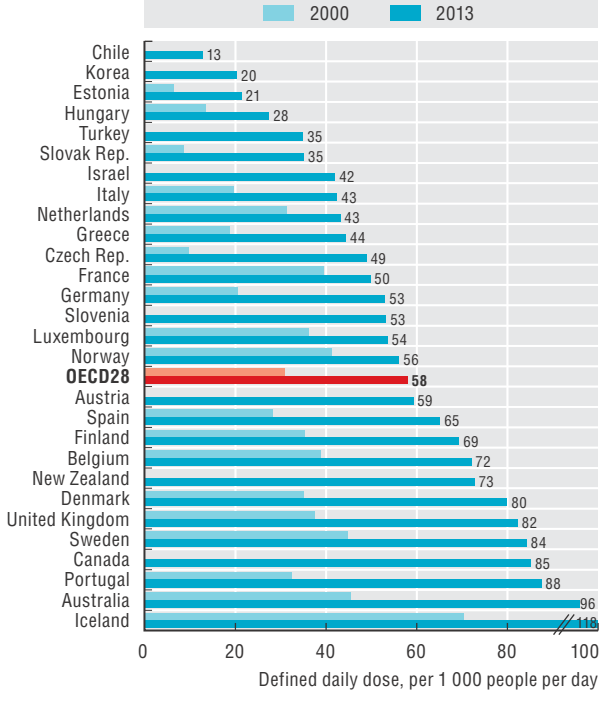
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281342

10.10. Antidiabetic drugs consumption, 2000 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281342
Information on data for Israel: *http://oe.cd/israel-disclaimer*

10.11. Antidepressant drugs consumption, 2000 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.
StatLink http://dx.doi.org/10.1787/888933281342

Share of generic market

All OECD countries see the development of generic markets as a good opportunity to increase efficiency in pharmaceutical spending but many do not fully exploit the potential of generics (Figure 10.12). In 2013, generics accounted for more than three-quarters of the volume of pharmaceuticals sold in the United States, the United Kingdom, Chile, Germany and New Zealand, while they represented less than one-quarter of the market in Luxembourg, Switzerland, Italy, and Greece.

Some of the differences in generic uptake can be explained by market structures, notably the number of off-patent medicines, and by prescribing practices, but generic uptake also very much depends on policies implemented by countries (EGA, 2011; Vogler, 2012). Several countries have expanded their efforts to encourage generic uptake since the onset of the economic crisis in 2008.

Prescribing in International Non-proprietary Name (INN) is permitted in two-thirds of OECD countries and is mandatory in a few countries (e.g. Estonia since 2010, Portugal and Spain since 2011, and France since 2015). Similarly, pharmacists are allowed to substitute brand-name drugs with generics in a majority of OECD countries. While generic substitution is mandatory in some countries (e.g., Denmark, Finland, Spain, Sweden, Italy), New Zealand and the United Kingdom have high generic penetration without any substitution mandate.

Financial incentives for physicians, pharmacists and patients have been implemented to boost the development of generic markets. For instance, France (in 2009 and 2012) introduced incentives for GPs to prescribe generics through a pay-for-performance scheme while Japan (in 2012) increased the share of generics in total prescribing leading to a bonus.

Pharmacies are often paid through mark-ups based on the price of medicines. This disincentive to substitute a generic for a more expensive drug has been addressed in some countries. France guarantees pharmacists an equivalent mark-up, while in Switzerland, pharmacists receive a fee for generic substitution. In several countries, pharmacists have the obligation to inform patients about the possibility of a cheaper alternative.

Patients have a financial interest to choose cheaper drugs when their co-payment is lower for generic drugs than for its equivalent. This is generally the case in all systems using reference prices (or fixed reimbursement amount) for clusters of products. In Greece, patients choosing originator over generic drugs are now required to pay for the difference. In France, since 2010, patients refusing generic substitution have to pay in advance for their drugs and are reimbursed later.

These policies, associated with patent expiries of several blockbusters in recent years, have contributed to the increase in generic market share observed over the past decade (Figure 10.13). In Portugal, the generic reimbursed market grew from virtually zero in 2000 to 39% in volume and 23% in value in 2013. In Spain, the generic reimbursed market share reached 47% in volume and 21% in value in 2013, up from 3% in 2000. Beyond encouraging generic take-up, it is also important to promote the lowest possible price for generics. Figure 10.12 suggests, for instance, that the differential price between brand-name and generic drugs is much higher in the United Kingdom than in Germany.

One way to exert pressure on generic prices is tendering, which has been used in New Zealand, the Netherlands and Germany with some success. Many countries, however, prefer regulating the price of generics at market entry by reference to the price of the originator (a practice known as "generic price linkage"). Several countries have recently increased this gap. In Canada, several provinces have introduced or reduced the reimbursement prices of generics included in public plans' formularies since 2010. As a result, generic price caps are around 25% of brand name products' price (PMPRB, 2015). France and Greece also increased the gap between originator and generic prices to 40% and 60% respectively (Belloni et al., forthcoming).

Definition and comparability

A generic is defined as a pharmaceutical product which has the same qualitative and quantitative composition in active substances and the same pharmaceutical form as the reference product, and whose bioequivalence with the reference product has been demonstrated. Generics can be classified in branded generics (generics with a specific trade name) and unbranded generics (which use the international non-proprietary name and the name of the company).

In many countries, the data cover all pharmaceutical consumption. However, several countries provide data covering only the community pharmaceutical market or the reimbursed pharmaceutical market.

The share of generic market expressed in value can be the turnover of pharmaceutical companies, the amount paid for pharmaceuticals by third-party payers, or the amount paid by all payers (third-party and consumers). The share of generic market in volume can be expressed in DDDs or as a number of packages/boxes or standard units.

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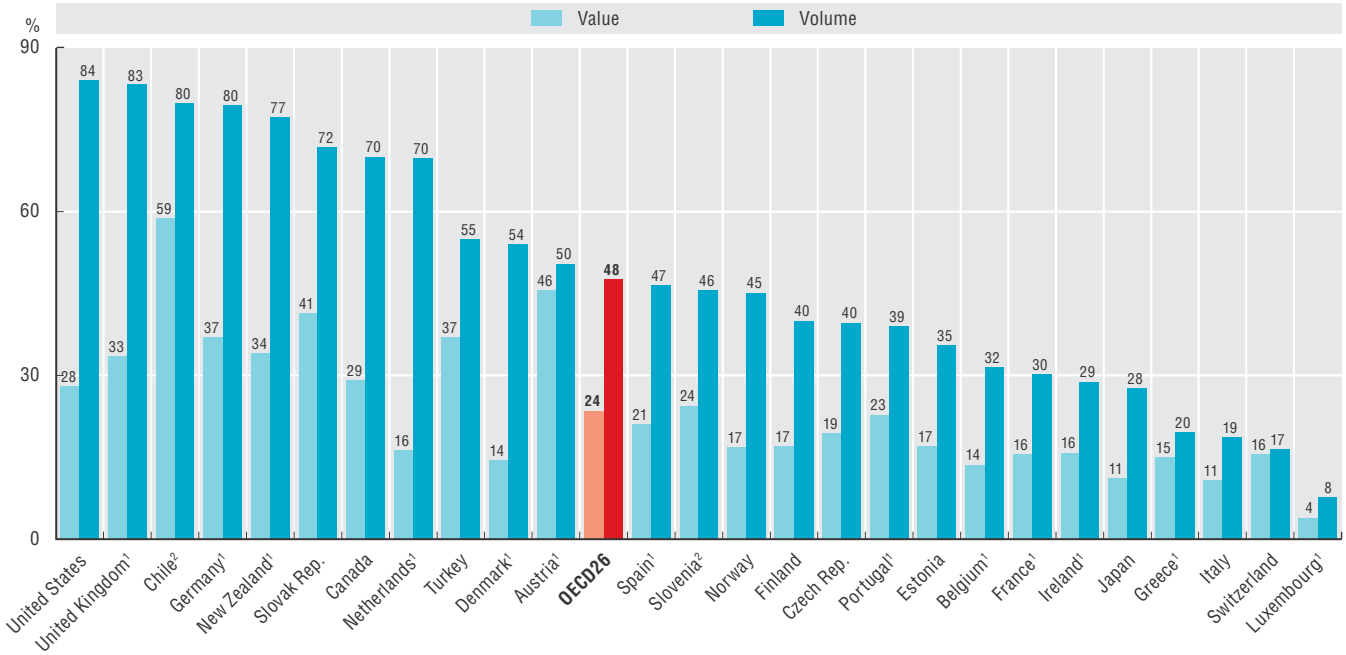
10.12. Share of generics in the total pharmaceutical market, 2013 (or nearest year)

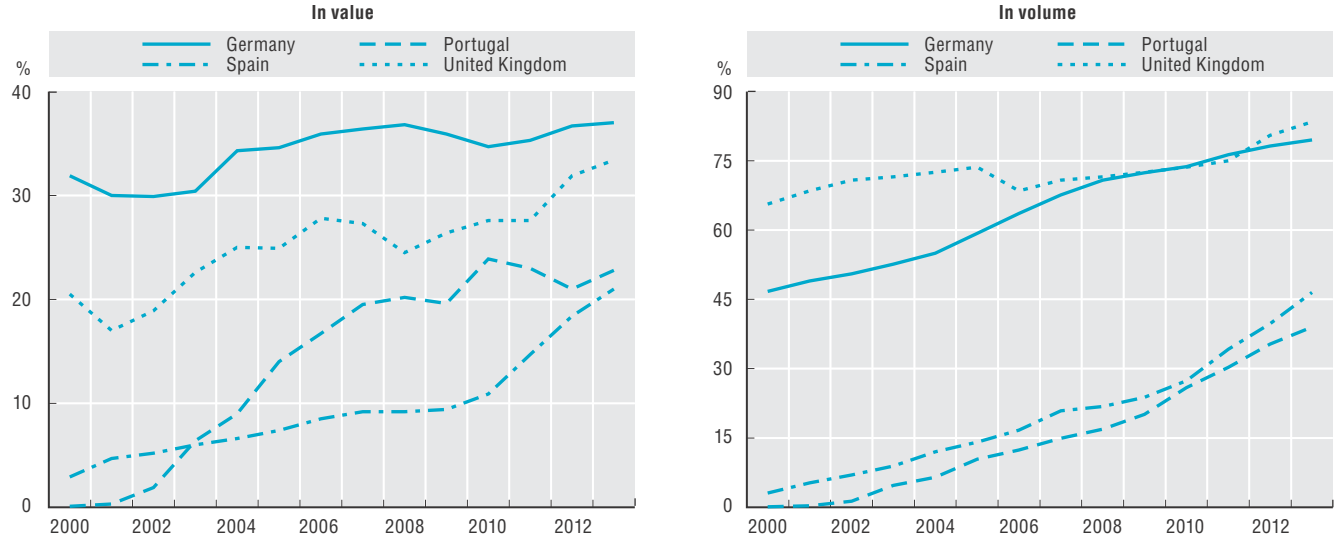


1. Reimbursed pharmaceutical market.
2. Community pharmacy market.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281352

10.13. Trend in share of generics in the reimbursed pharmaceutical market, selected countries, 2000 to 2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281352

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Research and development in the pharmaceutical sector

The pharmaceutical industry devotes significant resources to research and development (R&D). In 2011, the industry spent USD 92 billion on R&D (OECD, 2015). This represents 10-15% of industry revenues.

While pharmaceutical and biotechnology companies are the greatest contributors to pharmaceutical R&D, pharmaceutical R&D financing is a complex mix of private and public funding. The industry receives R&D tax credits in many countries, and the development of medicines draws heavily on knowledge and innovation derived from other sectors including higher education and NGOs (Kezselheim et al., 2015).

Worldwide, most pharmaceutical R&D activity takes place in OECD countries. In 2011, the pharmaceutical industry spent close to USD 50 billion for R&D in the United States, 11.5 billion in Japan, 5.2 in Germany and 3.7 in France. As a share of GDP, pharmaceutical industry R&D spending is highest in Switzerland (0.63%), Belgium (0.45%), Slovenia (0.45%) and Denmark (0.36%) (Figure 10.14). In the United States and Japan, the percentages were 0.30 and 0.26 respectively.

In some countries, pharmaceutical R&D accounts for one-fourth to one-third of total private R&D expenditure, reflecting a high degree of specialisation. This is the case in Belgium (31%), Switzerland (30%), the United Kingdom (28%), Hungary (26%) and Slovenia (25%). Sixteen and ten per cent of private R&D was spent on pharmaceuticals in the United States and Japan respectively.

Expenditure on R&D in the pharmaceutical industry in OECD countries doubled in real terms between 2000 and 2011 (Figure 10.15). Expenditure growth was the highest in the United States (+85%), followed by Japan (+76%) and Europe (+38%). Outside the OECD, China has seen pharmaceutical R&D spending increase by 3.4-fold during that time.

Is this increase in R&D spending associated with a higher output or productivity? In the United States, the world's largest developer of pharmaceuticals, the annual number of approved new drugs, formulations or indications has more than doubled since 1970 (Figure 10.16). However, when compared with R&D spending over that period (adjusted for inflation), the number of approvals per billion USD spent on R&D has reduced by a factor of 15 (Figure 10.16).

The reasons for this observation are likely to be complex. Growing requirements to obtain regulatory approval have increased development costs. Higher failure rates and an ever-increasing "back catalogue" of effective drugs may also be a factor. More fundamental problems with the current R&D model and development pipeline have also been suggested (Scannell et al., 2012). Risk-benefit decisions made by industry regarding early R&D targets may also be a function of the regulator, payer and the community response to the eventual product. Of course, the downward trend may reverse in the coming years due to changes in the R&D model, or the emergence of new technology (e.g. precision medicine).

Definition and comparability

Business enterprise expenditure on R&D (BERD) covers R&D activities carried out in the private sector by performing firms and institutes, regardless of the origin of funding. This includes all firms, organisations and institutions whose primary activity is the production of goods and services for sale to the general public at an economically significant price, and the private and not-for-profit institutions serving them. BERD will register in the country where the R&D activity took place, not the country of origin of the organisations funding the activity.

Data are provided by participating countries using a survey. When assessing changes in BERD over time, it is necessary to take account of changes in methods and breaks in series, notably in terms of the extension of survey coverage, particularly in the services sector, and the privatisation of publicly owned firms. Identifying new and occasional R&D performers is also a challenge and OECD countries take different approaches in their BERD surveys.

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.

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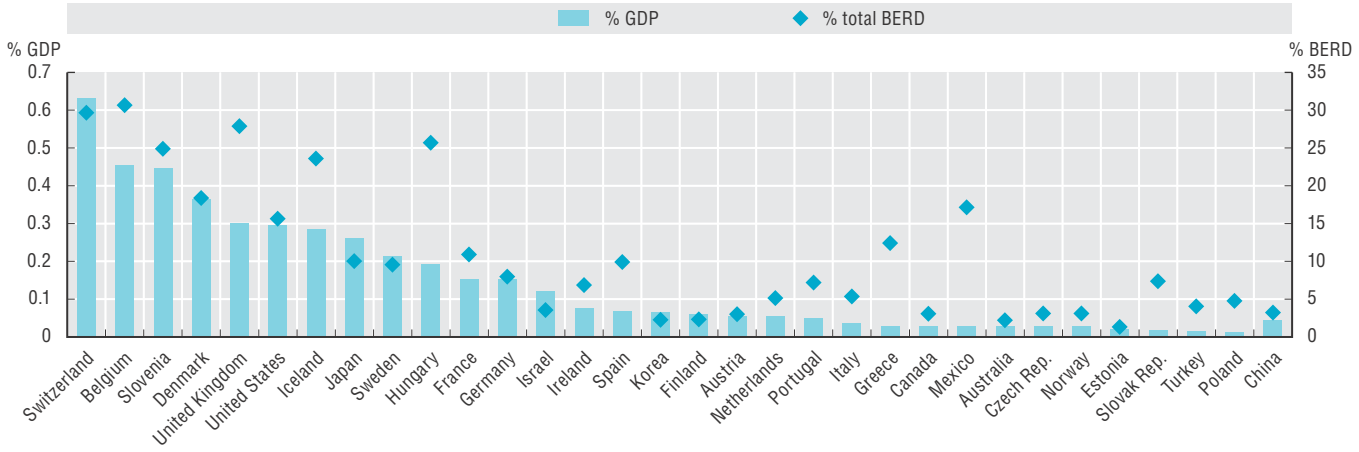
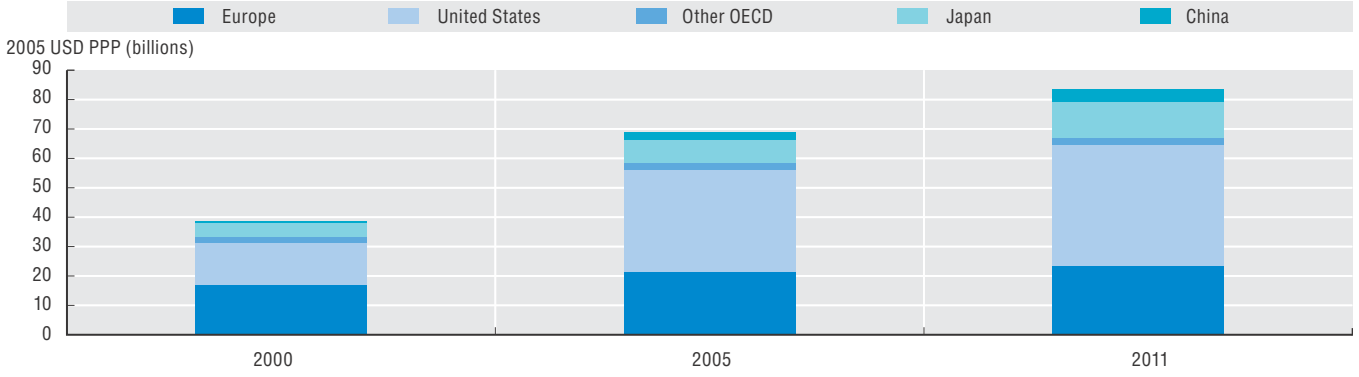
10.14. Business expenditure on R&D (BERD) in pharmaceutical industry as a proportion of GDP and of total BERD, 2011 (or nearest year)



Source: *OECD Main Science and Technology Indicators Database.*

StatLink http://dx.doi.org/10.1787/888933281362

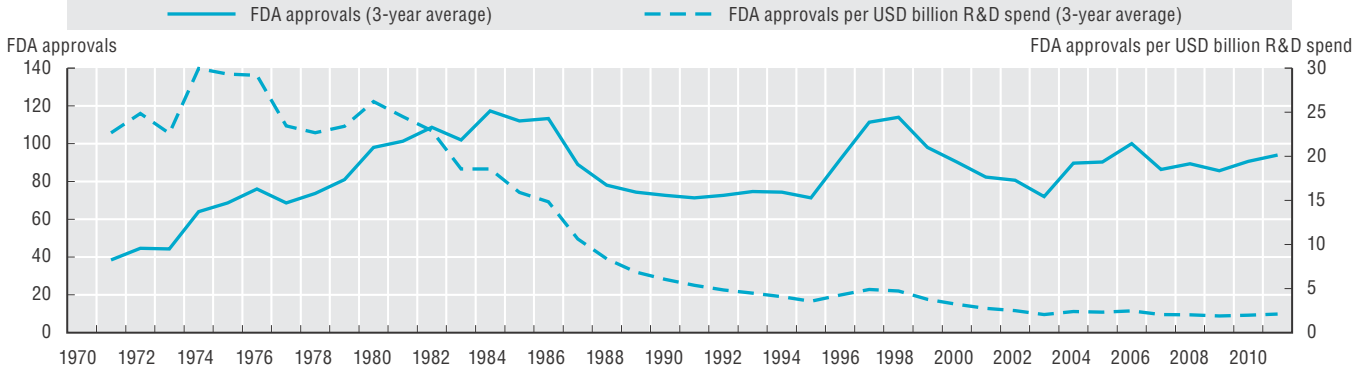
10.15. Business expenditure on R&D in the pharmaceutical sector by region in 2000, 2005 and 2011 (or nearest years) in 2005 USD PPP



Source: *OECD Main Science and Technology Indicators Database.*

StatLink http://dx.doi.org/10.1787/888933281362

10.16. Annual FDA pharmaceutical approvals, per USD billion R&D spend (indexed to 2008 USD)



Source: Pharmaceutical Research and Manufacturers of America (PhRMA); Food and Drug Administration (FDA); Scannell et al (2012).

StatLink http://dx.doi.org/10.1787/888933281362

Information on data for Israel: *http://oe.cd/israel-disclaimer*

11. AGEING AND LONG-TERM CARE

Demographic trends

Life expectancy and healthy life expectancy at age 65

Self-reported health and disability at age 65

Dementia prevalence

Recipients of long-term care

Informal carers

Long-term care workers

Long-term care beds in institutions and hospitals

Long-term care expenditure

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Demographic trends

Longer life expectancies (see "Life expectancy" indicator in Chapter 3) and declining fertility rates mean that older people make up an ever-increasing proportion of the populations of OECD countries.

On average across OECD countries, the share of the population aged over 65 years has increased from less than 9% in 1960 to 15% in 2010 and is expected to nearly double in the next four decades to reach 27% in 2050 (Figure 11.1, left panel). In about two thirds of OECD countries, at least one-quarter of the population will be over 65 years of age by 2050. This proportion is expected to be especially large in Japan, Korea and Spain where nearly 40% of the population will be aged over 65 years by 2050. Population ageing will also occur rapidly in China where the share of the population over 65 is expected to triple between 2010 and 2050, to reach a level just below the OECD average. Conversely, Israel, the United States and Mexico will see a more gradual increase in the share of the elderly population due to significant inflows of migrants and higher fertility rates.

The growth in the share of the population aged 80 years and over will be even more dramatic (Figure 11.1, right panel). On average across OECD countries, 4% of the population were 80 years old and over in 2010. By 2050, the percentage will increase to 10%. In Japan, Spain and Germany, the proportion of the population aged over 80 is expected to nearly triple between 2010 and 2050 (rising from 6% to 16% in Japan and from 5% to 15% in Spain and Germany). The rise will be even faster in Korea where the share of the population aged over 80 years will grow from 2% to 14% over the next four decades. China will see similarly rapid ageing, with the share of the population aged over 80 rising from 1% to 8%.

Population ageing is a phenomenon affecting most countries around the world, but the speed of the process varies (Figure 11.2). The speed of population ageing is particularly rapid in the European Union, where the share of the population aged 80 years and over increased from 1.5% in 1960 to nearly 5% in 2010, and is expected to rise to 11% by 2050. The pace of population ageing has been slower in other parts of the world, although it is expected to accelerate in coming decades. In large partner countries including Brazil, China, India, Indonesia and South Africa, only 2% of the population was 80 years and over in 2010, but this share is expected to reach around 5% by 2050.

Although the pressure that this growing proportion of people aged 65 and 80 over will put on long-term care systems will depend on the health status of people as they reach these ages, population ageing is likely to lead to greater demand for elderly care. As the share of the economically active population is expected to decline, it will also affect the financing of social protection systems and the potential supply of labour in the economy. On average across OECD countries, there were slightly more than four people of working age (15-64 years) for every person 65 years and older in 2012. This rate is projected to halve from 4.2 in 2012 to 2.1 on average across OECD countries over the next 40 years (OECD, 2013).

Definition and comparability

Data on the population structure have been extracted from the OECD Historical Population Data and Projections (1950-2050). The projections are based on the most recent "medium-variant" population projections from the United Nations, World Population Prospects – 2012 Revision.

References

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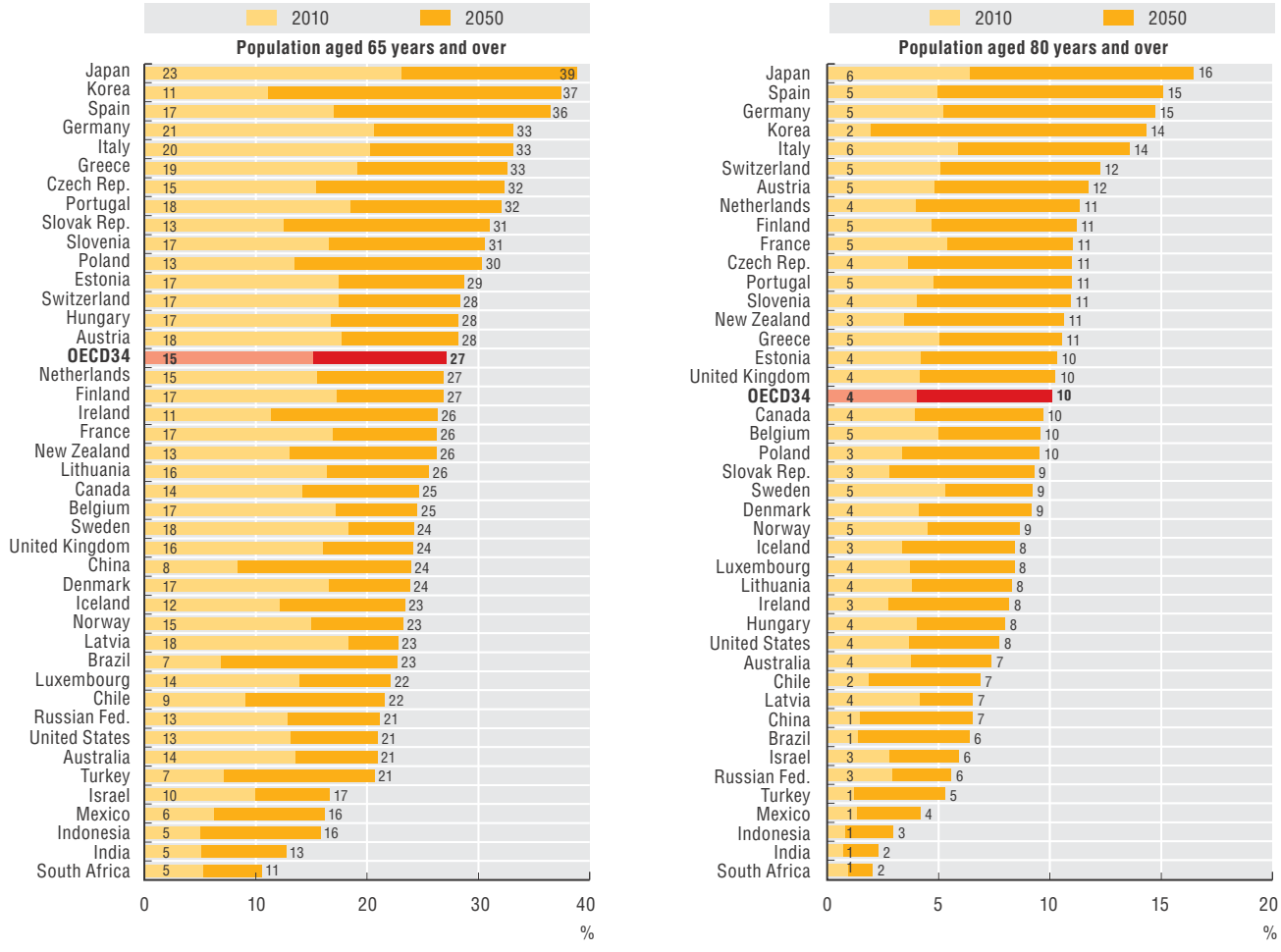
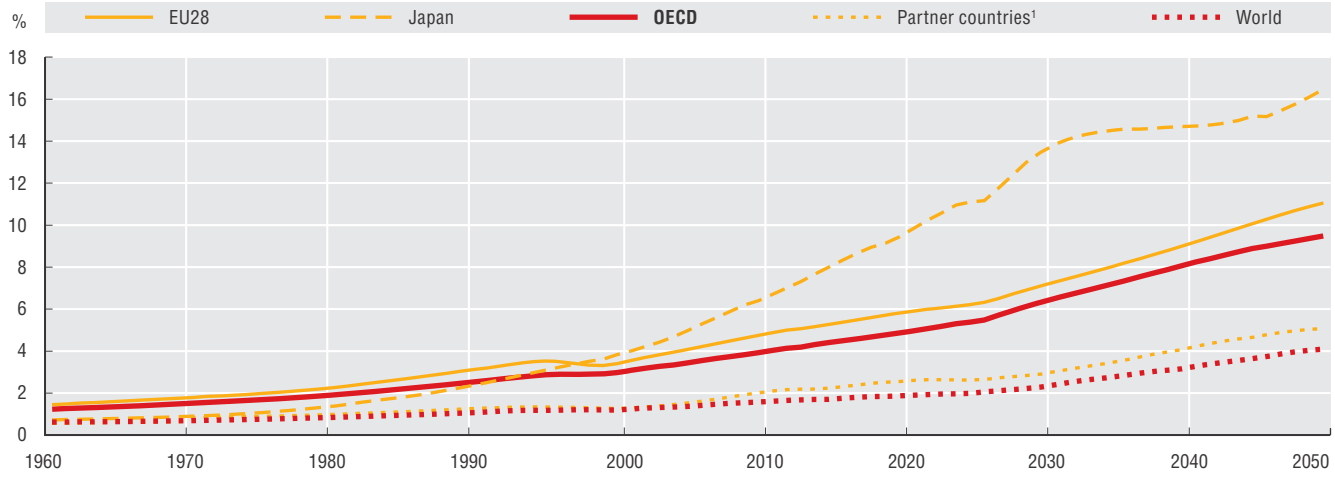
11.1. Share of the population aged over 65 and 80 years, 2010 and 2050



Source: OECD Historical Population Data and Projections Database, 2015.

StatLink http://dx.doi.org/10.1787/888933281371

11.2. Trends in the share of the population aged over 80 years, 1960-2050



1. Partner countries include Brazil, China, India, Indonesia, Latvia, Lithuania, Russia and South Africa.

Source: OECD Historical Population Data and Projections Database, 2015.

StatLink http://dx.doi.org/10.1787/888933281371

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Life expectancy and healthy life expectancy at age 65

Life expectancy at age 65 has increased significantly for both men and women over the past few decades in OECD countries, rising by 5.5 years on average since 1970 (Figure 11.3). Some of the factors explaining these 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.

Japan and Korea have achieved the highest gains in life expectancy at age 65 since 1970, with an increase of almost eight years. The gains have been much more modest in Hungary, the Slovak Republic and Mexico, with an increase of only about three years.

In 2013, people at age 65 in OECD countries could expect to live another 19.5 years: 21 years for women and 18 years for men (Figure 11.4). This gender gap of three years on average across OECD countries has been fairly stable over time. In 2013, life expectancy at age 65 was highest in Japan for women (24 years) and in Switzerland for men (nearly 20 years), followed by France in both cases. Among OECD countries, it was lowest in Hungary for both women and men.

Countries' relative positions with respect to life expectancy at age 65 mirror closely their relative positions with regard to life expectancy at age 80. Life expectancy at age 80 in 2013 was highest in France and Japan for women (who can expect to live an additional 11.5 years) and highest in France and Spain for men (who can expect to live more than 9 years).

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" is calculated regularly, based on a general question about disability in the European Union Survey of Income and Living Conditions (EU-SILC). Given that this indicator has only recently been developed, long-time series are not yet available and efforts continue to improve its comparability.

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 9.5 years for women and 9.4 years for men in 2013 (Figure 11.5). The absence of any significant gender gap in healthy life years means that many of the additional years of life that women experience relative to men are lived with some type of activity limitation. Nordic countries (with the exception of Finland) had the highest number of healthy life years at age 65 in 2013, with women and men in Iceland and Norway expecting to live an additional 15 years free from disability on average.

Life expectancy and healthy life expectancy at age 65 years vary by educational status. For both men and women, highly educated people are likely to live longer and in better health. Differences in life expectancy by education level are particularly large in Central and Eastern European countries, especially for men. In the Czech Republic, 65-year-old men with a high level of education could expect to live seven years longer than those with a low education level in 2012. By contrast, differences in life expectancy by education level are much smaller (less than two years) in Nordic countries (Denmark, Finland, Norway and Sweden) and Portugal (Eurostat Database 2015).

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") is defined as the number of years spent free of activity limitation. In Europe, this indicator is calculated annually by Eurostat for EU countries and some EFTA countries. 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. While healthy life years is the most comparable indicator to date, there are still problems with translation of the GALI question, although it does appear to satisfactorily reflect other health and disability measures (Jagger et al., 2010).

References

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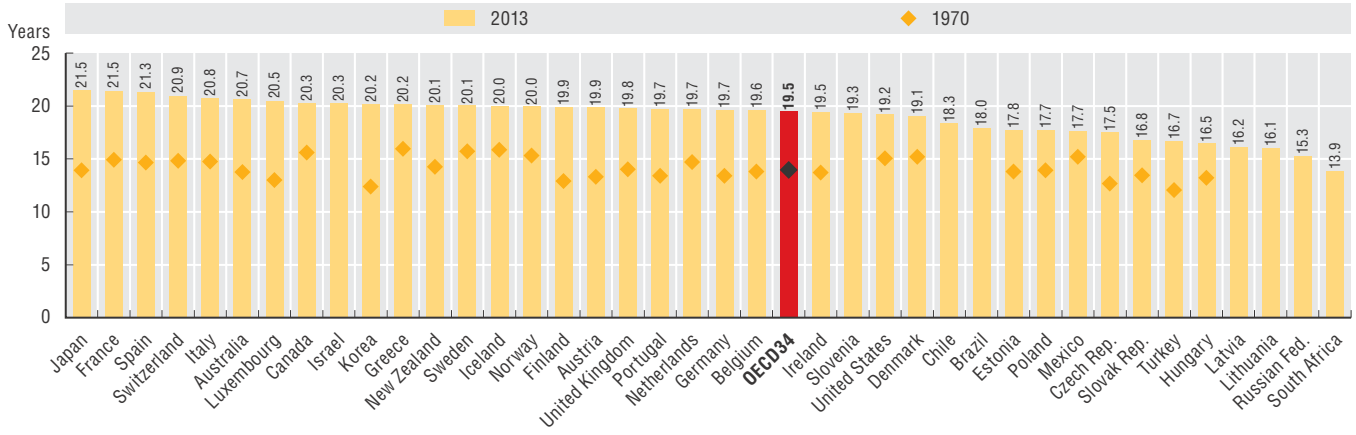
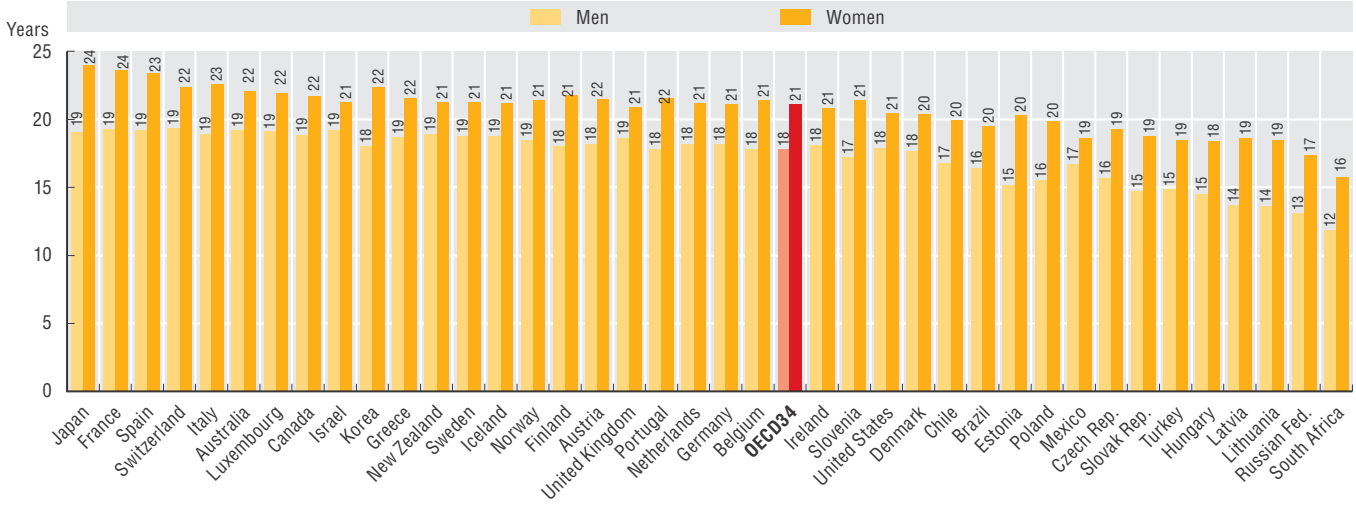
11.3. Life expectancy at age 65, 1970 and 2013 (or nearest years)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink *http://dx.doi.org/10.1787/888933281383*

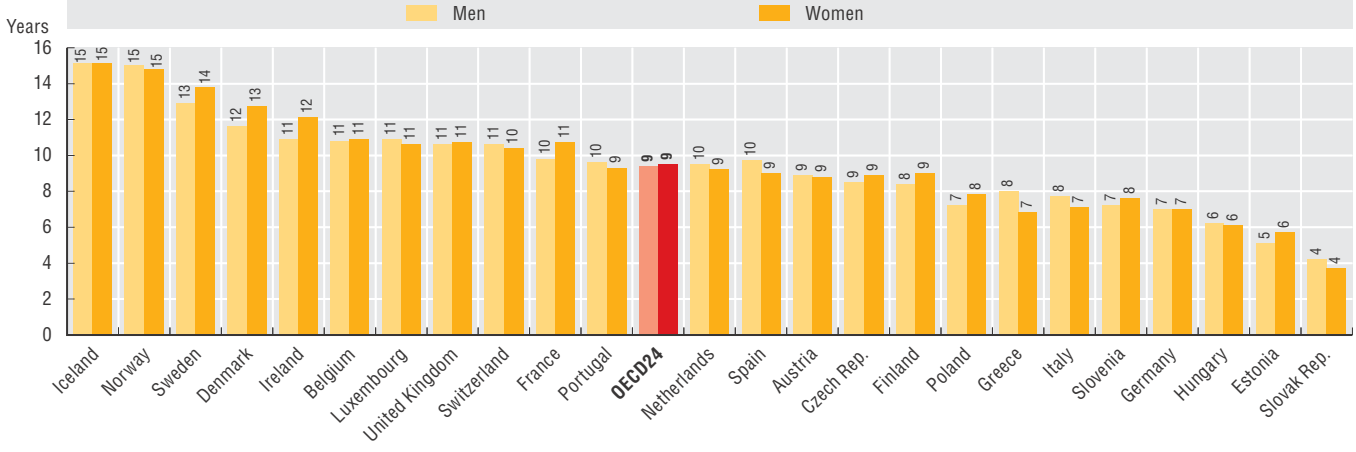
11.4. Life expectancy at age 65 by sex, 2013 (or nearest year)



Note: Countries are ranked in descending order of life expectancy for the whole population.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink *http://dx.doi.org/10.1787/888933281383*

11.5. Healthy life years at age 65, European countries, 2013



Note: Countries are ranked in descending order of healthy life expectancy for the whole population.
Source: Eurostat Database 2015.

StatLink *http://dx.doi.org/10.1787/888933281383*

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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. These surveys often include a question on self-perceived health status, along the lines of: "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 future health care use and mortality (DeSalvo, 2005; Bond et al., 2006). However, cross-country differences may be difficult to interpret, as 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 report being in good health in 13 of the 34 OECD countries (Figure 11.6). The highest rates are in New Zealand, Canada and the United States, where more than three-quarters of older people report 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" below). Among European countries, older people in Sweden, Switzerland, Norway and Ireland report the best health status, with more than 60% assessing their health to be good.

At the other end of the scale, less than 20% of over-65s in Portugal, Hungary, Estonia, Poland, Turkey, the Slovak Republic and Korea report being in good health. In nearly all countries, men over 65 were more likely than women to rate their health to be good. On average across OECD countries, 47% of men aged over 65 rated their health to be good or better, while 41% of women did 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. There has been significant improvement however in the United States, where the share has increased from 65% in 1982 to 77% in 2013.

Measures of disability are not yet standardised across countries, limiting the possibility for comparisons. In Europe, based on the EU Statistics on Income and Living Conditions survey, half of all over-65s reported that they were limited either to some extent or severely in their usual daily activities because of a health problem in 2013 (Figure 11.7). This ranged from a proportion of less than 25% in Norway and Iceland up to nearly 75% in the Slovak Republic and close to 70% in Estonia. On average across 25 European OECD countries, most limitations reported were moderate, 18% of the population aged 65 and over reported severe limitations, which often correspond to needs for long-term care.

Women were more likely than men to report severe activity limitations due to a health problem in all European countries covered by this survey, with the exception of Poland. The proportion of people aged 65 and over reporting some severe activity limitations was highest in Greece and the Slovak Republic, followed by Italy and Estonia (Figure 11.8).

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 Statistics* 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 Statistics* 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.

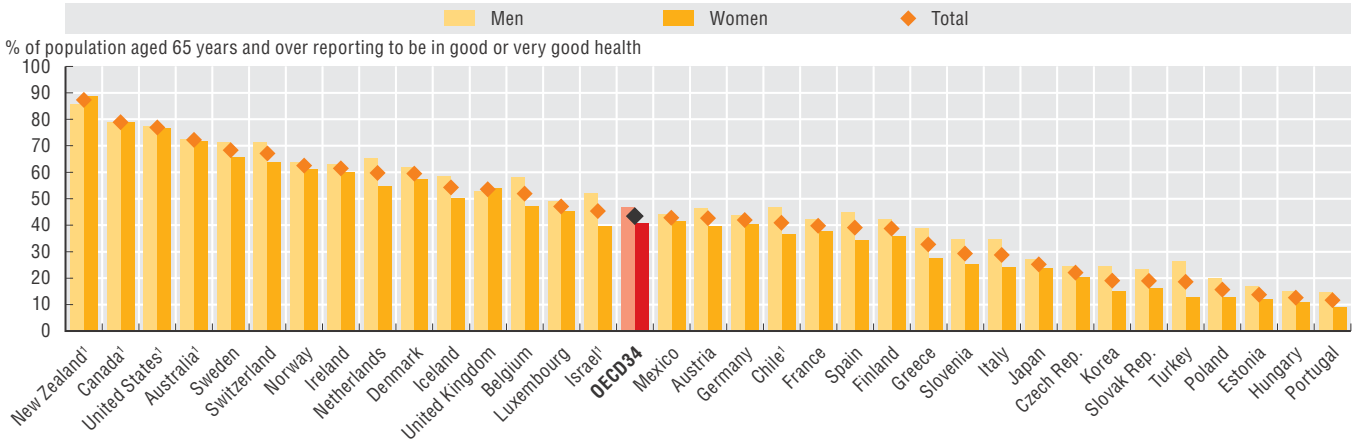
Perceived general disability is measured in the EU-SILC survey through the question: "For at least the past six months, have you been hampered because of a health problem in activities people usually do? Yes, strongly limited/Yes, limited/No, not limited". Persons in institutions are not surveyed, resulting in an underestimation of disability prevalence. Again, the measure is subjective, and cultural factors may affect survey responses.

References

Bond, J. et al. (2006), "Self-rated Health Status as a Predictor of Death, Functional and Cognitive Impairments: A Longitudinal cohort Study", *European Journal of Ageing*, Vol. 3, pp. 193-206.

DeSalvo, K.B. et al. (2005), "Predicting Mortality and Healthcare Utilization with a Single Question", *Health Services Research*, Vol. 40, pp. 1234-1246.

11.6. Perceived health status in adults aged 65 years and over, 2013 (or nearest year)

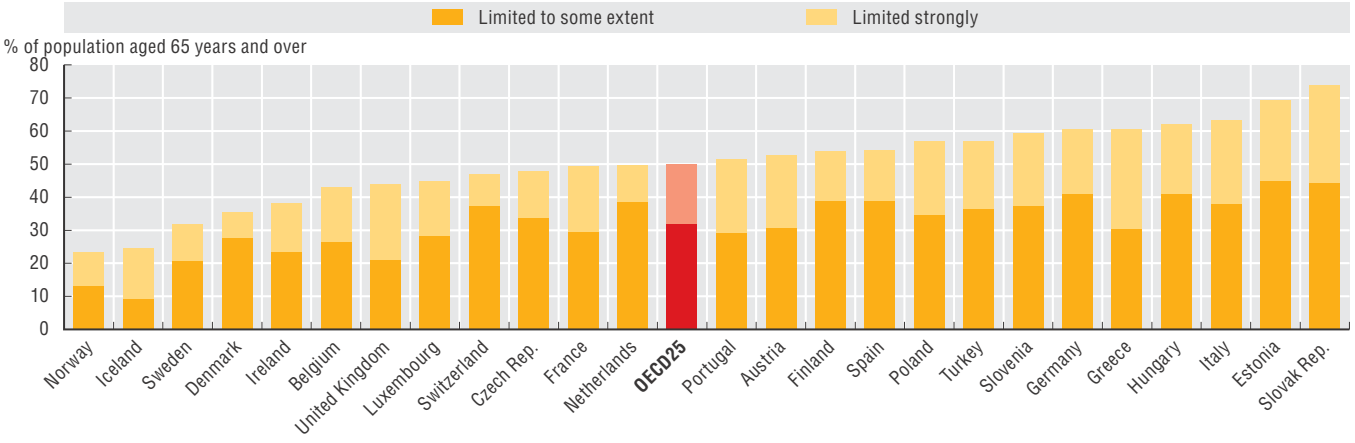


1. Results not directly comparable with other countries due to methodological differences (resulting in an upward bias).

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281398

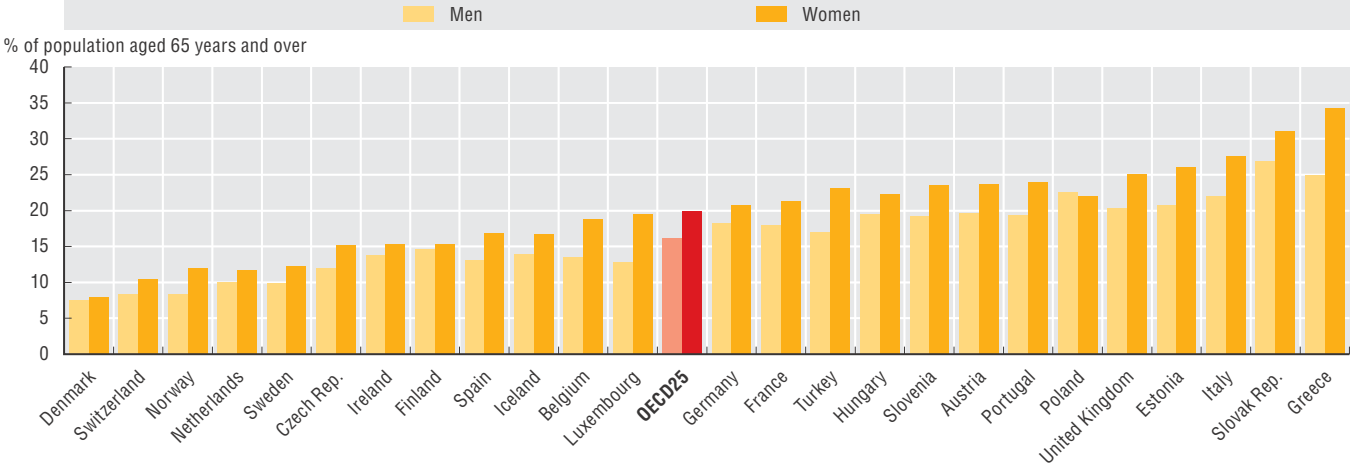
11.7. Limitations in daily activities in adults aged 65 years and over, European countries, 2013



Source: Eurostat Database 2015.

StatLink http://dx.doi.org/10.1787/888933281398

11.8. Strong limitations in daily activities in adults aged 65 years and over, European countries, 2013



Note: Countries are ranked in ascending order of percentage with strong limitations in daily activities for the whole population.

Source: Eurostat Database 2015.

StatLink http://dx.doi.org/10.1787/888933281398

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Dementia prevalence

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. There is currently no cure or disease modifying treatment, but better policies can improve the lives of people with dementia by helping them and their families adjust to living with the condition and ensuring that they have access to high quality health and social care.

According to WHO, 47.5 million people around the world live with dementia in 2015. With populations ageing and the effectiveness of preventive strategies still unclear, this number is expected to rise to 75.6 million by 2030 and almost triple by 2050, reaching 135.5 million (WHO, 2015). The global cost of dementia was estimated at USD 604 billion in 2010 (Wimo et al., 2013) and as prevalence increases this cost will grow.

In 2015, there were an estimated 18 million people living with dementia in OECD countries, equivalent to more than one in every 70 people. Although some people develop early-onset dementia, the vast majority of those with dementia are older people and across all OECD countries more than one in every 16 people aged over 60 are living with the condition. Prevalence varies between countries: Italy, Japan and Germany all have more than 20 people with dementia per 1 000 population, while the Slovak Republic, Korea, Mexico and Turkey have fewer than ten (Figure 11.9).

Much of the variation in prevalence is due to the age structures of the populations in different countries, since dementia is strongly linked to age. Across all OECD countries, around 1.3% of people aged 60-64 have dementia, compared to nearly 45% of those aged over 90 (Figure 11.10). Age-specific prevalence is similar across most countries, although studies in Latin America have found higher rates than in other regions (Prince et al., 2013). While this may be partly due to differences in study design, it has also been suggested that low educational levels among older people and high vascular risk could be contributing to increased rates of dementia (Rizzi et al., 2014).

If the age-specific prevalence of dementia remains the same, ageing populations mean that it will become more common in the future. Prevalence will rise more quickly in countries that are ageing rapidly. For example, the next 20 years will see prevalence in Japan rise from 21 to nearly 37 per 1 000 people; and in Korea prevalence will more than double from 8 to 20 per 1 000 people (Figure 11.9). The overall number of people living with dementia in OECD countries will rise from 18 million in 2015 to nearly 31 million in 2035, with the oldest people (aged over 90) accounting for an increasing share (Figure 11.11). However, there is some evidence that the age-specific prevalence of dementia may be falling in some countries (Matthews et al., 2013) and it may be possible to reduce the risk of dementia through healthier lifestyles and preventive interventions. If such efforts are successful, the rise in prevalence may be less dramatic than these numbers suggest.

There has recently been a renewed international focus on tackling dementia and the OECD has been at the forefront of this work, supporting countries to develop better policies. Finding a cure must be the long-term goal, but this will require greater investment and a more collaborative approach to research, harnessing the potential of big data. However, any cure is likely to take several years to develop and in the meantime countries need to act to improve the lives of the millions of people living with dementia now. This must include promoting timely diagnosis, delivering high quality health and long-term care and providing support for families and carers (OECD, 2015).

Definition and comparability

The prevalence estimates in Figure 11.9 are taken from Prince et al. (2013), which is the latest and most comprehensive systematic review of studies of dementia prevalence around the world. Prevalence by country has been estimated by applying these age-specific prevalence rates for the relevant region of the world to population estimates from the UN (World Population Prospects: The 2012 Revision). Although gender-specific prevalence rates were available for some regions, the overall rates were used in this analysis. Prevalence rates are assumed to be constant over time.

References

Matthews, F.E. et al. (2013), "A Two-decade Comparison of Prevalence of Dementia in Individuals Aged 65 Years and Older from Three Geographical Areas of England: Results of the Cognitive Function and Ageing Study I and II", *The Lancet*, Vol. 382, No. 9902.

OECD (2015), *Addressing Dementia: The OECD Response*, OECD Health Policy Studies, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264231726-en*.

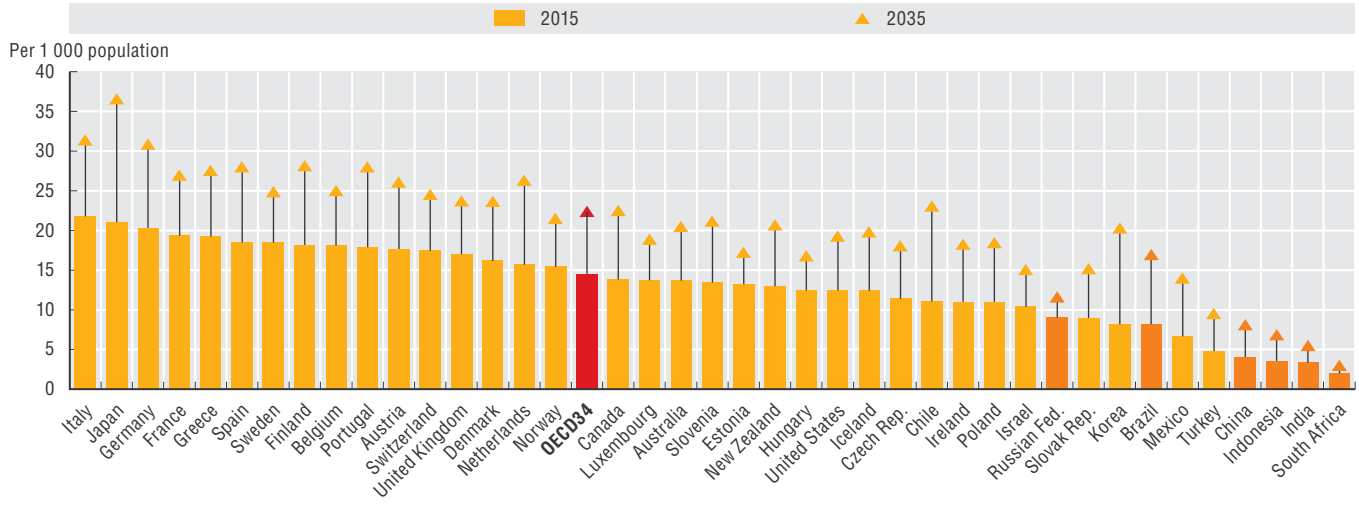
Prince, M. et al. (2013), "The Global Prevalence of Dementia: A Systematic Review and Metaanalysis", *Alzheimer's & Dementia*, Vol. 9, No. 2, pp. 63-75.

Rizzi, L. et al. (2014), "Global Epidemiology of Dementia: Alzheimer's and Vascular Types", *BioMed Research International*, Vol. 2014, Article ID 908915, 8 pages.

WHO (2015), "Dementia", *Fact Sheet No. 362*, *www.who.int/mediacentre/factsheets/fs362/en/*.

Wimo, A. et al. (2013), "The Worldwide Economic Impact of Dementia 2010", *Alzheimer's & Dementia*, Vol. 9, No. 1, pp. 1-11.

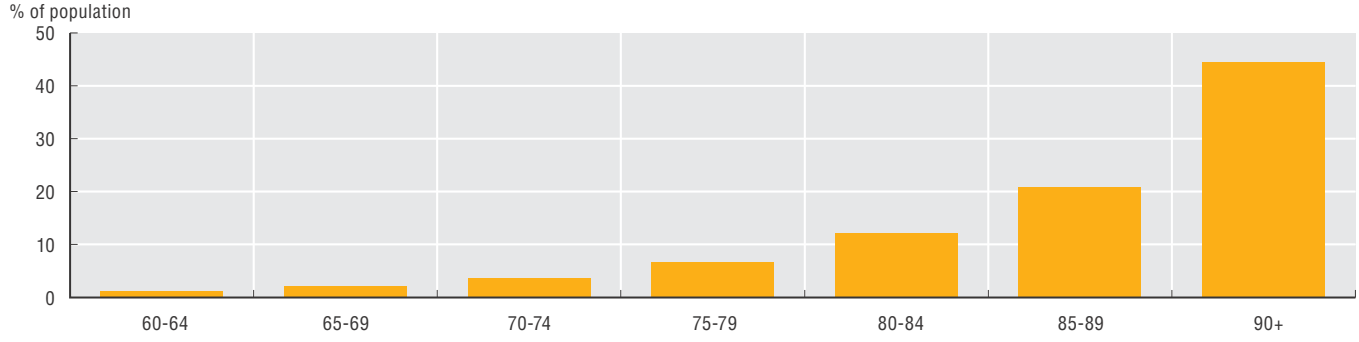
11.9. Estimated prevalence of dementia per 1 000 population, 2015 and 2035



Source: OECD analysis of data from Prince et al. (2013) and the United Nations.

StatLink http://dx.doi.org/10.1787/888933281401

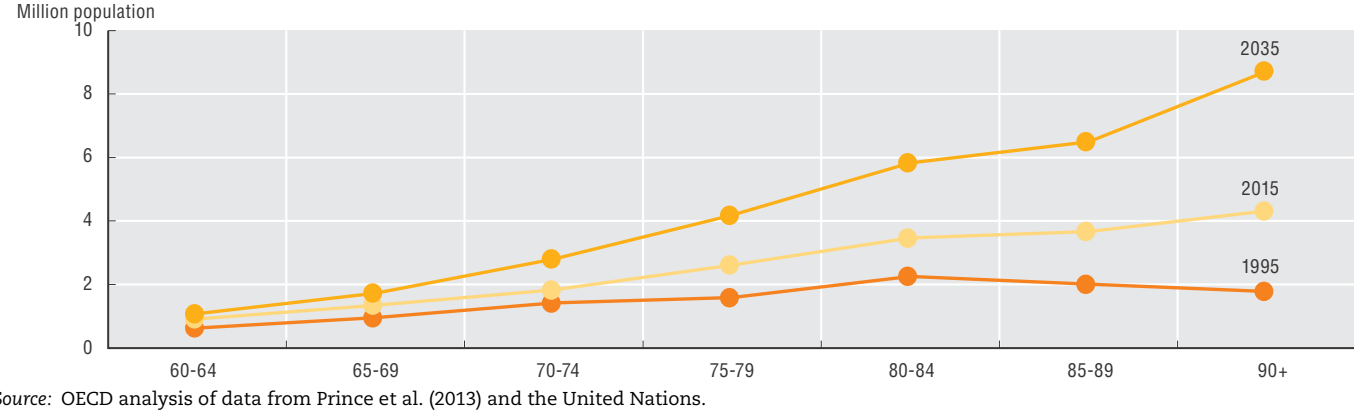
11.10. Age-specific prevalence of dementia across all OECD countries, 2015



Source: OECD analysis of data from Prince et al. (2013) and the United Nations.

StatLink http://dx.doi.org/10.1787/888933281401

11.11. Estimated number of people with dementia in all OECD countries, by age, 1995, 2015 and 2035



Source: OECD analysis of data from Prince et al. (2013) and the United Nations.

StatLink http://dx.doi.org/10.1787/888933281401

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Recipients of long-term care

As people age, they are more likely to develop disabilities and need support from family, friends and long-term care (LTC) services. As a result, while LTC services are delivered to younger disabled groups, the majority of LTC recipients are older people. On average across the OECD, more than half of all LTC recipients are aged over 80 and nearly four in five are aged over 65 (Figure 11.12). Rising life expectancies mean that older people make up an increasing proportion of the populations of OECD countries. The risk of dementia (see indicator on "Dementia prevalence") and other debilitating conditions increases with age, so demand for LTC services is likely to increase – although this effect may be partially offset by improving health in old age. As a result, the average proportion of the population receiving LTC in OECD countries has risen from 1.9% in 2000 to 2.3% in 2013.

While population ageing is a significant driver of the growth in LTC users over time, it explains relatively little of the cross-country variation. For example, Portugal has a relatively old population but only a small proportion receiving formal LTC. By contrast, Israel has one of the youngest populations in the OECD but a greater than average proportion receiving LTC. A more important driver is the availability of publicly funded LTC services. Countries with strong public provision, such as the Netherlands and Nordic countries, report the greatest number of LTC recipients as a share of their populations, while countries with limited public provision, such as the United States, Portugal and Poland, report much smaller numbers. However, data for people receiving care outside of public systems are more difficult to collect and may be underreported, meaning that figures for countries that rely more heavily on privately-funded care may be artificially low. Cultural norms around the degree to which families look after older people may also be an important driver of the utilisation of formal services (see indicator on "Informal carers").

In response to most people's preference to receive LTC services at home, many OECD countries have over the past decade implemented programmes and benefits to support home-based care, in particular for older people. In most countries for which trend data are available, the proportion of LTC recipients aged 65 and over receiving long-term care at home has increased over the past ten years (Figure 11.13), with particularly large increases in Sweden, France and Korea. Often this is the result of specific policies: for example, Sweden has reduced its institutional care capacity in an effort to encourage community care; while France has adopted a multi-year plan to increase home nursing care capacity to 230 000 by 2025 (Colombo et al., 2011).

While the proportion of LTC recipients living at home has increased over the past decade in most OECD countries, it has declined from 69% to 60% in Finland. However, this does not represent an increase in the use of traditional institutions, but an increase in the use of "service housing" – where older people move into specially adapted houses where 24/7 care is available. This model of care allows people with relatively severe needs to retain more independence and autonomy than they would in a traditional care institution.

Definition and comparability

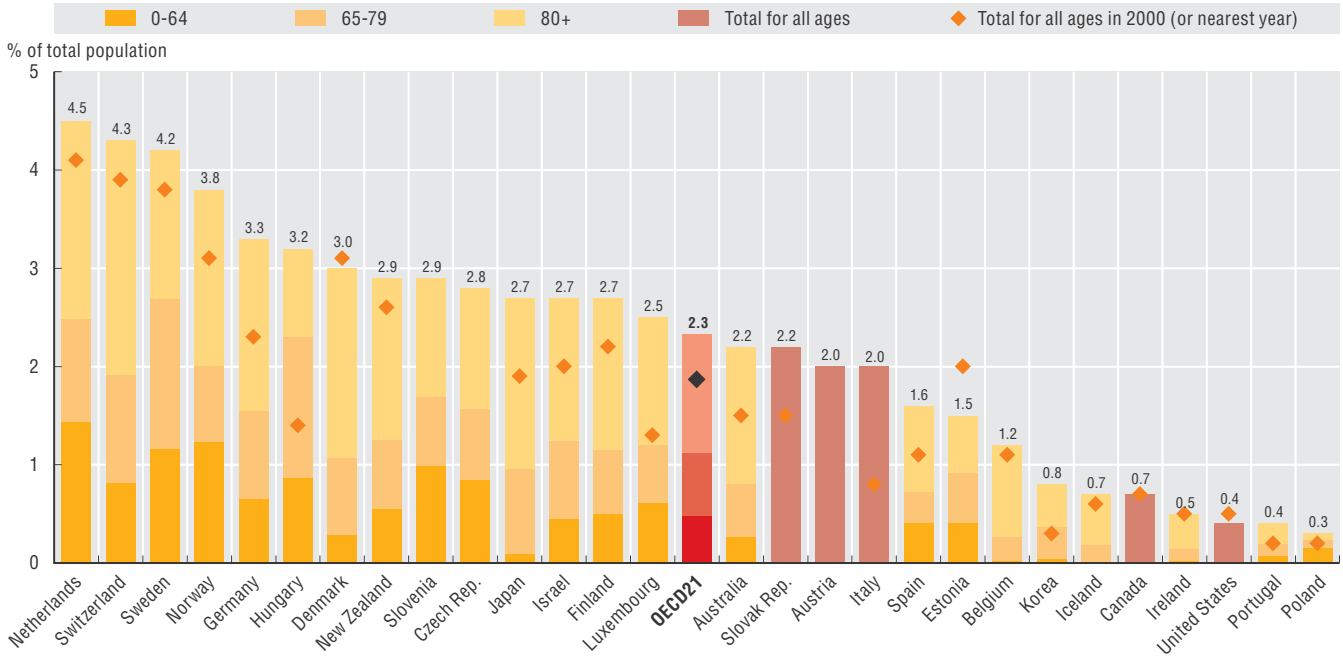
LTC recipients are defined as persons receiving long-term care by paid providers, including non-professionals receiving cash payments under a social programme. They also include recipients of cash benefits such as consumer-choice programmes, care allowances or other social benefits which are granted with the primary goal of supporting people with long-term care needs. LTC institutions refer to nursing and residential care facilities which provide accommodation and long-term care as a package. LTC at home is defined as people with functional restrictions who receive most of their care at home. Home care also applies to the use of institutions on a temporary basis, community care and day-care centres and specially designed living arrangements. Data for Iceland and Canada are only available for people receiving care in institutions, so the total number of recipients will be underestimated.

Concerning the number of people receiving LTC in institutions, the estimate for Ireland is underreported. Data for Japan underestimate the number of recipients in institutions because hospitals also provide LTC. In the Czech Republic, LTC recipients refer to recipients of the care allowance (i.e., cash allowance paid to eligible dependent persons). Data for Poland only refer to services in nursing homes. Data in Spain only refer to a 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, as it is currently unknown how many of these people could be included in LTC recipients. Australia collects data on users of aged care, but this does not distinguish those using services on a long-term basis, so the figures presented here are estimated. With regard to the age threshold in chart 11.13, data for France refer to people aged over 60.

References

Colombo, F. et al. (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264097759-en*.

11.12. Proportion of population receiving long-term care, 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

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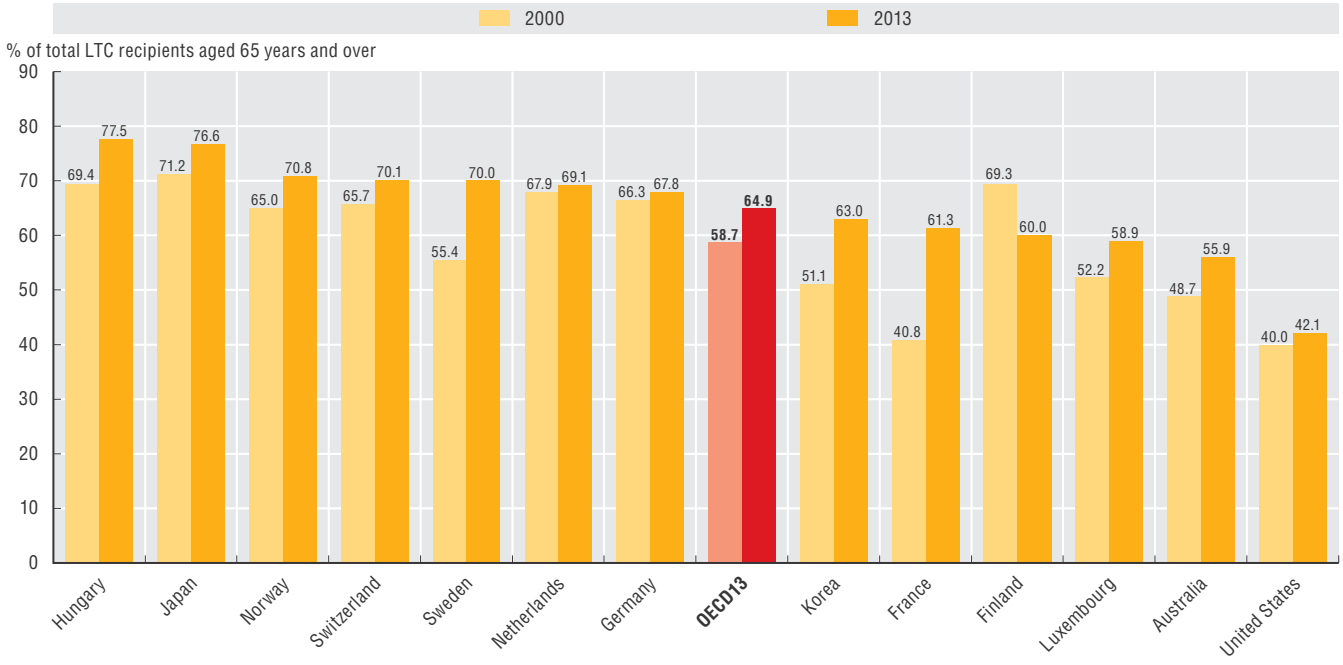
11.13. Share of long-term care recipients aged 65 years and over receiving care at home, 2000 and 2013 (or nearest year)



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281419

Information on data for Israel: *http://oe.cd/israel-disclaimer*

Informal carers

Family and friends are the most important source of care for people with LTC needs in OECD countries. Because of the informal nature of care that they provide, it is not easy to get comparable data on the number of people caring for family and friends across countries, nor on the frequency of their caregiving. 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 family members and friends.

On average across OECD countries, around 15% of people aged 50 and over provided care for a dependent relative or friend in 2013 (Figure 11.14). There is significant variation between countries, with nearly 20% of over-50s in Belgium and Estonia providing informal care, compared to just over 10% in Israel and Australia. Rates of informal care are negatively correlated with the proportion of older people receiving formal services (see indicator on "Recipients of informal care") and the density of LTC workers (see indicator on "Long-term care workers"). Countries such as Estonia and the Czech Republic, with relatively few LTC workers and recipients of formal services, have higher rates of informal care; while countries such as Israel and Sweden, with large number of LTC workers and many older people receiving LTC services, have lower rates of informal care. The causality here is not clear: it could be that strong public provision means families do not have to care for older people with LTC needs, or it could be that a strong tradition of family support reduces the need for extensive public provision.

The majority of informal carers are women in all OECD countries and on average more than 60% of carers are women. This ranges from a high of 70% in Slovenia to a low of 55% in Sweden (Figure 11.15).

On average across OECD countries, 74% of informal carers provide care on a daily basis, while the remaining 26% provide care only on a weekly basis. However, there is wide variation across countries in the intensity in caregiving (Figure 11.16). In countries with comprehensive public LTC systems, such as the Netherlands, Switzerland and Nordic countries, family and friends provide less intensive care. The highest intensity of care is reported in Spain, Slovenia and Israel – although these countries actually have relatively few people providing informal care (Figure 11.14). Taking the total number of carers into account, Estonia, Belgium, the Czech Republic and France have greatest proportion of over-50s providing daily care to family or friends, suggesting that informal care is particularly important in these countries.

Intensive caregiving is associated with a reduction in labour force attachment for caregivers of working age, higher poverty rates, and a higher prevalence of mental health problems. Many OECD countries have implemented policies to support family carers with a view to mitigating these negative impacts. These include paid care leave (e.g., Belgium), flexible work schedules (e.g., Australia and the United States), respite care (e.g., Austria, Denmark and Germany) and counselling/training services (e.g., Sweden). Moreover, a number of OECD countries provide cash benefits to family caregivers or cash-for-care allowances for recipients which can be used to pay informal caregivers (Colombo et al., 2011).

Declining family size, increased geographical mobility and rising participation rates of women in the labour market mean that there is a risk that fewer people will be willing and able to provide informal care in the future. This could have two consequences. Firstly, those that do provide informal care may be required to provide higher-intensity care. This will make the support that they receive even more important if negative health and employment outcomes are to be avoided. Secondly, a reduction in the supply of informal care would put increasing pressure on public LTC systems. These systems will need adequate funding and infrastructure in place to cope with increased demand, otherwise people could be left without access to the services they need.

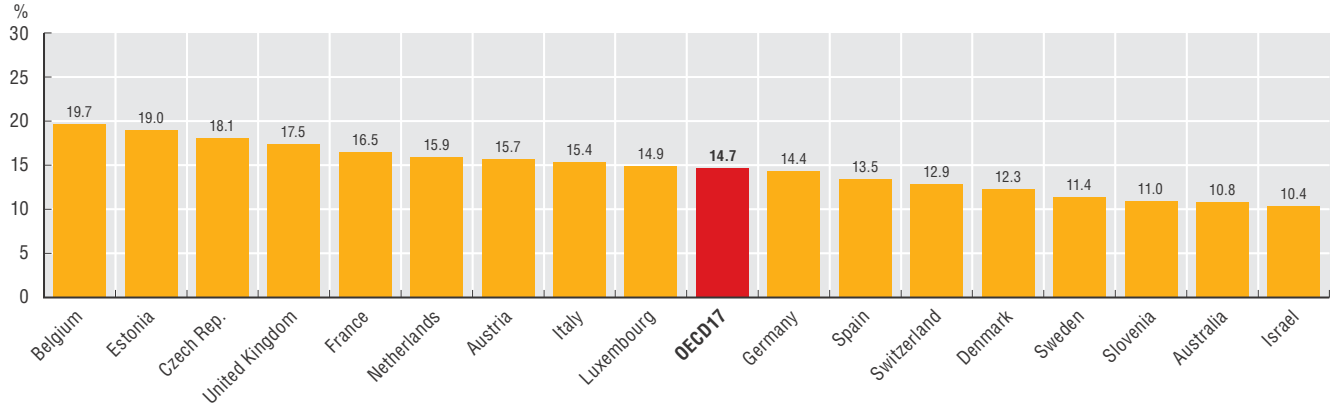
Definition and comparability

Family carers are defined as people providing daily or weekly help to family members, friends and people in their social network living in their household or outside of the household who require help for Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). The data relate only to the population aged 50 and over, and are based on national or international health surveys. Survey results may be affected by reporting biases or recall problems. Data for Australia are limited to those providing assistance with mobility, self-care, and communication, so may be underestimated relative to other countries.

References

Colombo, F. et al. (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264097759-en*.

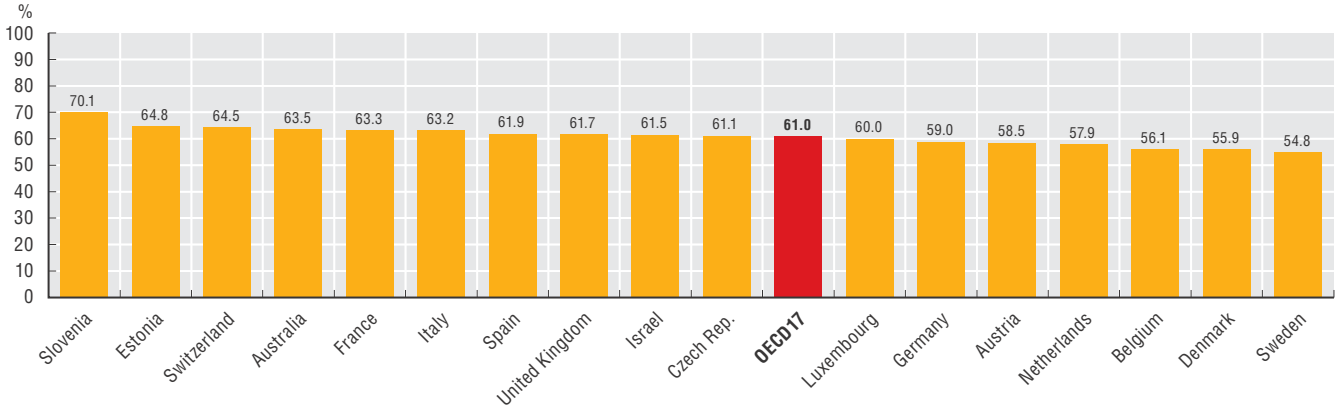
11.14. Population aged 50 and over reporting to be informal carers, 2013 (or nearest year)



Source: OECD estimates based on 2013 HILDA survey for Australia, 2012-13 Understanding Society survey for the United Kingdom and 2013 SHARE survey for other European countries.

StatLink http://dx.doi.org/10.1787/888933281423

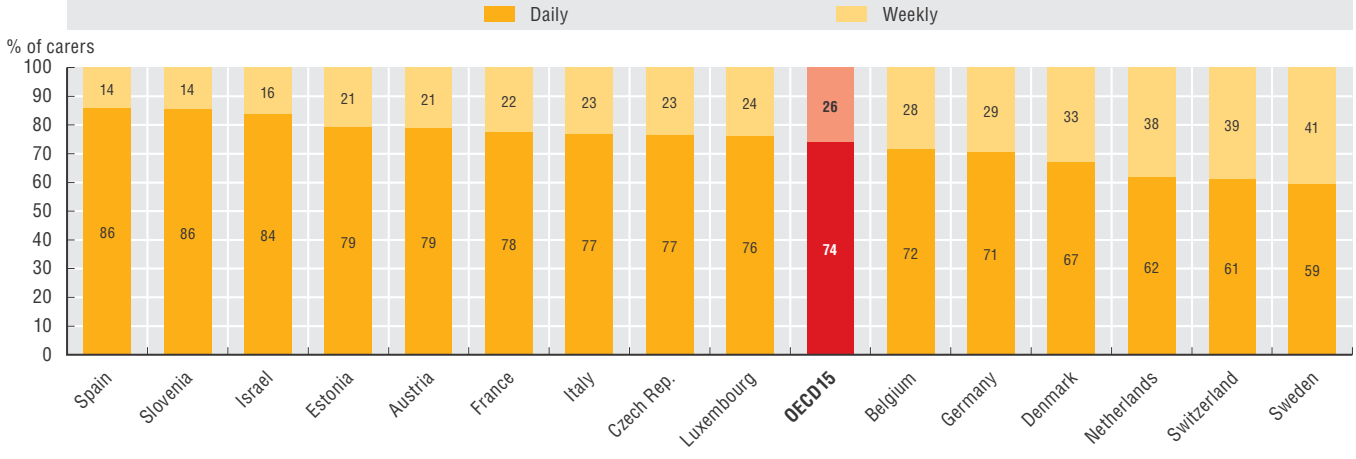
11.15. Share of women among all informal carers aged 50 and over, 2013 (or nearest year)



Source: OECD estimates based on 2013 HILDA survey for Australia, 2012-13 Understanding Society survey for the United Kingdom and 2013 SHARE survey for other European countries.

StatLink http://dx.doi.org/10.1787/888933281423

11.16. Frequency of care provided by informal carers, 2013



Source: OECD estimates based on 2013 SHARE survey.
Information on data for Israel: *http://oe.cd/israel-disclaimer*

StatLink http://dx.doi.org/10.1787/888933281423

Long-term care workers

Long-term care (LTC) is a labour-intensive service. Formal LTC workers are defined as paid staff, typically nurses and personal carers, providing care and/or assistance to people limited in their daily activities at home or in institutions, excluding hospitals. Formal care is complemented by informal, usually unpaid, support from family and friends, which accounts for a large part of care for older people in all OECD countries (see indicator on "Informal carers").

Relative to the population aged 65 and over, Sweden and the United States have the most LTC workers and Turkey and Portugal the least (Figure 11.17). In all countries except for Israel, Japan, Estonia and Korea, the majority of LTC staff work in institutions, even though the majority of recipients usually receive care at home (see indicator on "Care recipients"). This reflects the fact that those in institutions often have more severe needs and require more intensive care.

Most LTC workers are women and work part-time. Over 90% of LTC workers are women in Canada, Denmark, the Czech Republic, Ireland, Korea, New Zealand, the Slovak Republic, the Netherlands, Norway and Sweden. Foreign-born workers also play an important role in LTC provision, although their presence is uneven across OECD countries. While Germany has very few foreign-born LTC workers, nearly one in four care workers in the United States is foreign-born (Colombo et al., 2011). The recruitment of foreign-born workers can help respond to growing demand for LTC, but growing migrant inflows have raised issues around the management of irregular migration, and paid work which is undeclared for tax and social security purposes.

The LTC sector represents a small but growing share of total employment in OECD countries, averaging just over 2%. This share has increased over the past decade in many countries, with the broadening of public provision and increased demand for services. In Japan, the number of LTC workers has more than doubled since 2001, following the implementation of a universal LTC insurance programme in 2000 and government policies to professionalise LTC work, while there was a slight decrease in total employment over this period. Similarly, LTC employment in Germany has outstripped the growth in total employment since 2001. In contrast, LTC employment in Sweden and the Netherlands – countries which already had comprehensive LTC systems and high employment in the sector in the early 2000s – has roughly followed trends in overall employment (Figure 11.18).

On average, around 30% of LTC workers are nurses and the other 70% are personal care workers (also referred to as nursing aides, health assistants in institutions or home-based care assistants) with less formal training. Since quality of care depends on all staff having appropriate skills, many OECD countries have set educational and training requirements for personal care workers, although these vary substantially, especially where home-based care is concerned (OECD/European Commission, 2013).

Increasing demand for LTC services and a possible decline in the availability of family caregivers mean that demand for LTC workers is likely to rise. Responding to increasing demand will require 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; European Commission, 2013).

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 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 across countries. 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. They exclude nurses working in administration. The numbers are expressed as head counts, not full-time equivalent.

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. The data for Australia are estimates drawn from the 2011 National Aged Care Workforce Census and Survey, and underrepresent the numbers of people who could be considered LTC workers.

References

Colombo, F. et al. (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264097759-en*.

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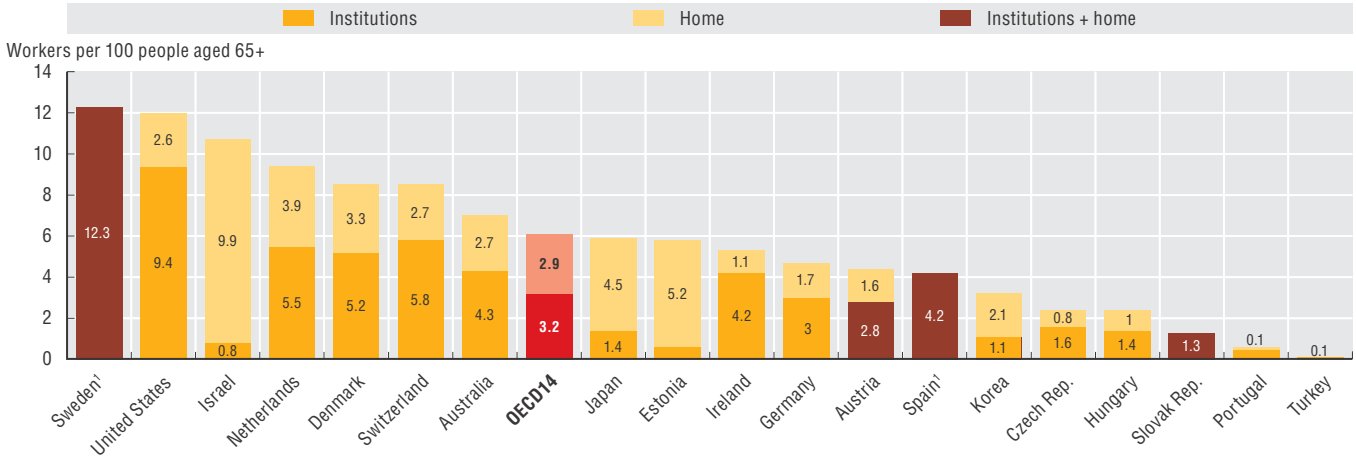
11.17. Long-term care workers per 100 people aged 65 and over, 2013 (or nearest year)

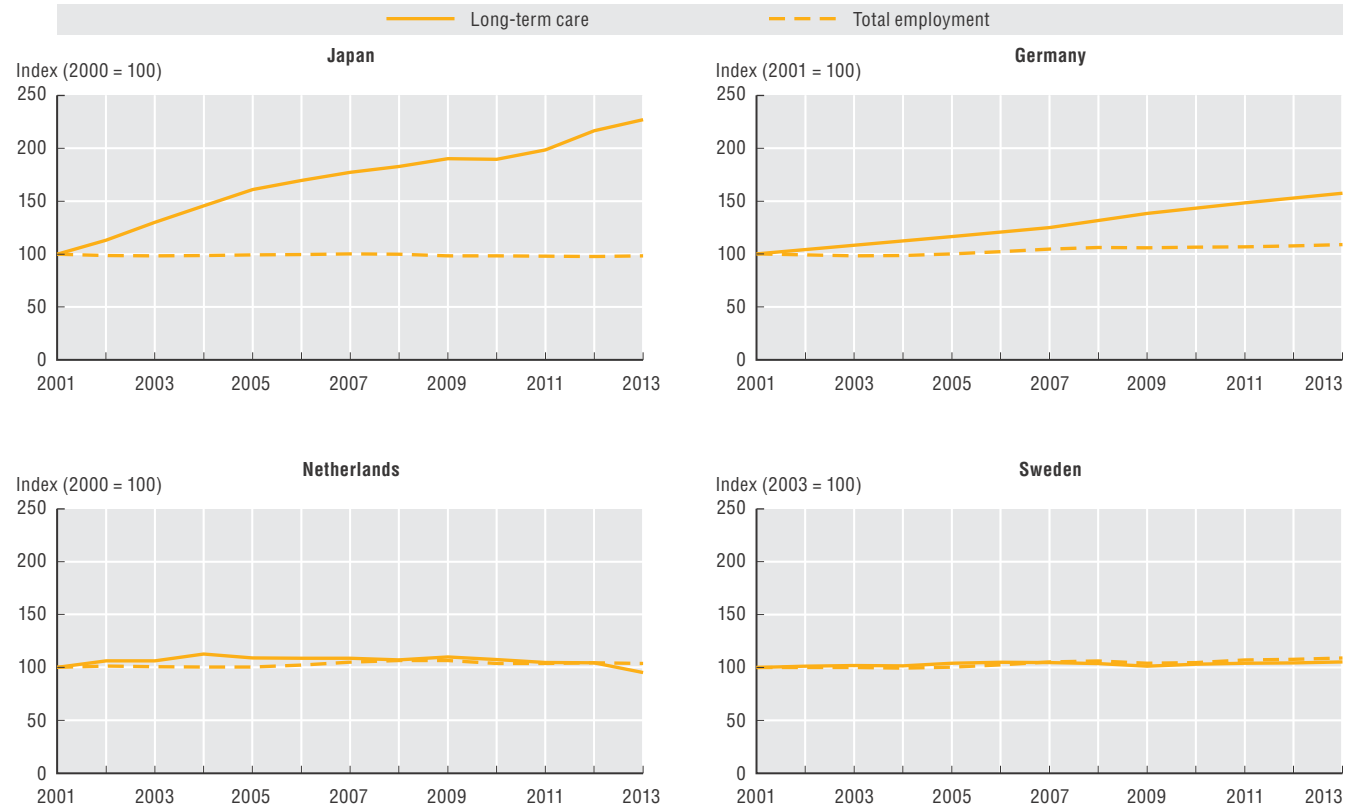


1. In Sweden, Spain and the Slovak Republic, it is not possible to distinguish LTC workers in institutions and at home.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281433

11.18. Trends in long-term care employment and total employment, selected OECD countries, 2001-13



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink http://dx.doi.org/10.1787/888933281433

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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.

On average across OECD countries, there were 45 beds in LTC institutions and five beds in LTC departments in hospitals per 1 000 people aged 65 and over in 2013 (Figure 11.19). Belgium had the highest number of LTC beds in 2013, with around 72 beds per 1 000 people aged 65 and over in LTC institutions. On the other hand, there were fewer than 20 beds per 1 000 people aged 65 and over in LTC institutions or in hospitals in Italy and Poland.

On average across all OECD countries, there has been a slight increase in the number of LTC beds per 1 000 population over 65 since 2000 (Figure 11.20). This increase consists entirely of beds in LTC institutions, with the number of hospital beds remaining constant on average. However, this masks a lot of variation. At one extreme, some countries with well-established, comprehensive LTC systems have been reducing residential LTC capacity. Sweden has reduced the number of LTC beds by 2.4 per year per 1 000 population over 65, as part of a drive to move LTC out of residential facilities and into the community (Colombo et al., 2011). The Netherlands, Denmark and Norway have also made significant reductions in the number of beds available. At the other end of the scale, Korea has seen a massive increase in capacity since 2000, adding 4.5 beds per year per 1 000 population over 65, with the increase particularly marked since the introduction of a public LTC insurance scheme in 2008. In contrast to many other countries, a significant proportion of the LTC beds added in Korea are in hospitals. Spain has also increased its number of LTC beds significantly, although all of the additional beds are in LTC institutions rather than hospitals.

While most countries allocate very few beds for LTC in hospitals, others still use hospital beds quite extensively for LTC purposes. Despite recent increases in the number of beds in LTC institutions in Korea, the majority of LTC beds are still in hospitals. In Japan many hospital beds are used for long-term care, but recently the number has been decreasing. Some European countries, such as Finland, Hungary and Estonia, still have a significant number of LTC beds in hospitals, but in general there has been a move towards replacing hospital beds with institutional facilities, which are often cheaper and provide a better living environment for people with LTC needs. Finland, France and Iceland have all seen significant increases in LTC beds in institutions and decreases in hospital LTC beds since 2000 – although in the case of Iceland, this is partly due to changes in how beds are categorised.

Providing LTC in institutions can be more efficient than community care for people with intensive needs, due to economies of scale and the fact that care workers do not need to travel to each person separately. However, from the point of view of public budgets, it often costs more, since informal carers make less of a contribution and LTC systems often pick up board and lodging costs as well as care costs. Moreover, LTC users generally prefer to remain at home and most countries have taken steps in recent years to support this preference and promote community care (see Figure 11.13). However, depending on individual circumstances, a move to LTC institutions may be the most appropriate 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. It is therefore important that countries retain an appropriate level of residential LTC capacity, and that care institutions develop and apply models of care that promote dignity and autonomy.

Definition and comparability

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. 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, they should not include beds in rehabilitation centers.

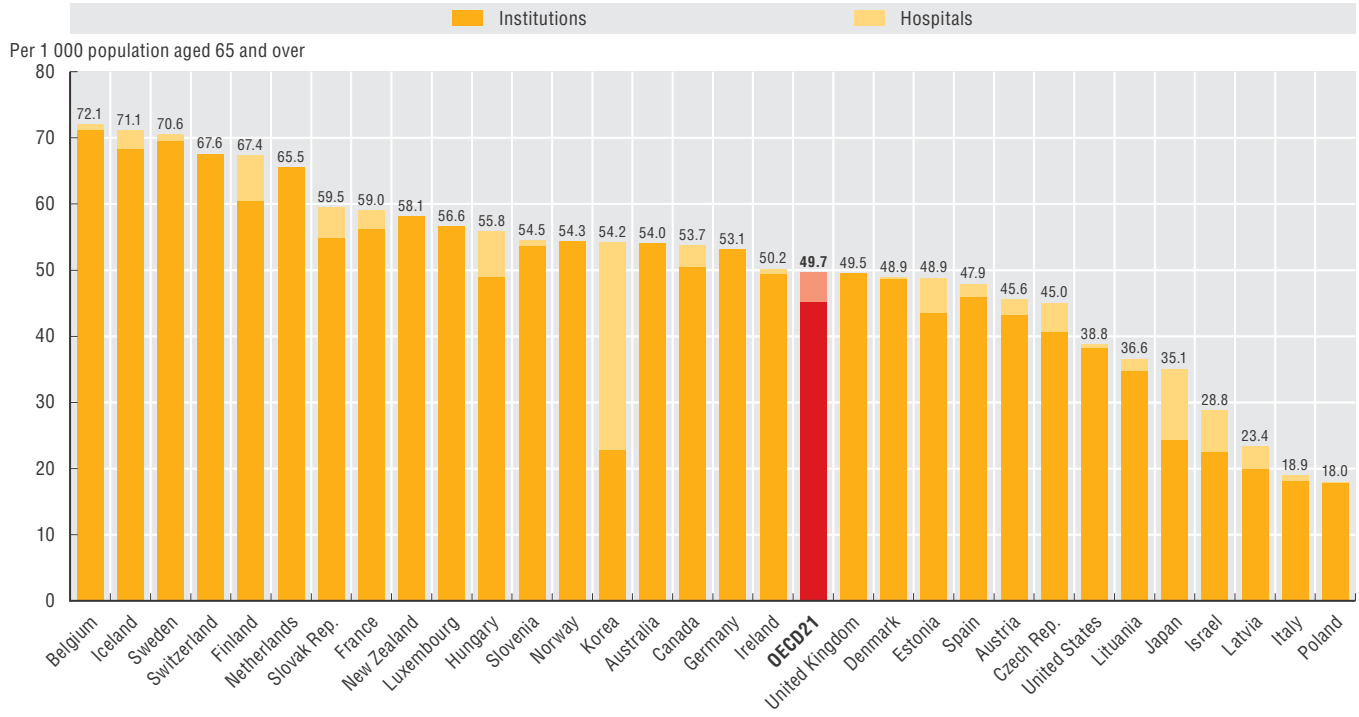
However, there are variations in data coverage across countries. Several countries only include beds in publicly-funded LTC institutions, while others also include private institutions (both profit and non-for-profit). Some countries also include beds in treatment centers for addicted people, psychiatric units of general or specialised hospitals, and rehabilitation centers. Australia does not collect data on the numbers of beds provided for LTC. Data on Australian LTC beds in institutions are estimated from aged care database.

References

Colombo, F. et al. (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264097759-en*.

Wiener, J. et al. (2009), "Why Are Nursing Home Utilization Rates Declining?", Real Choice System Change Grant Program, US Department of Health and Human Services, Centres for Medicare and Medicaid Services, available at *www.hcbs.org/files/160/7990/SCGNursing.pdf*.

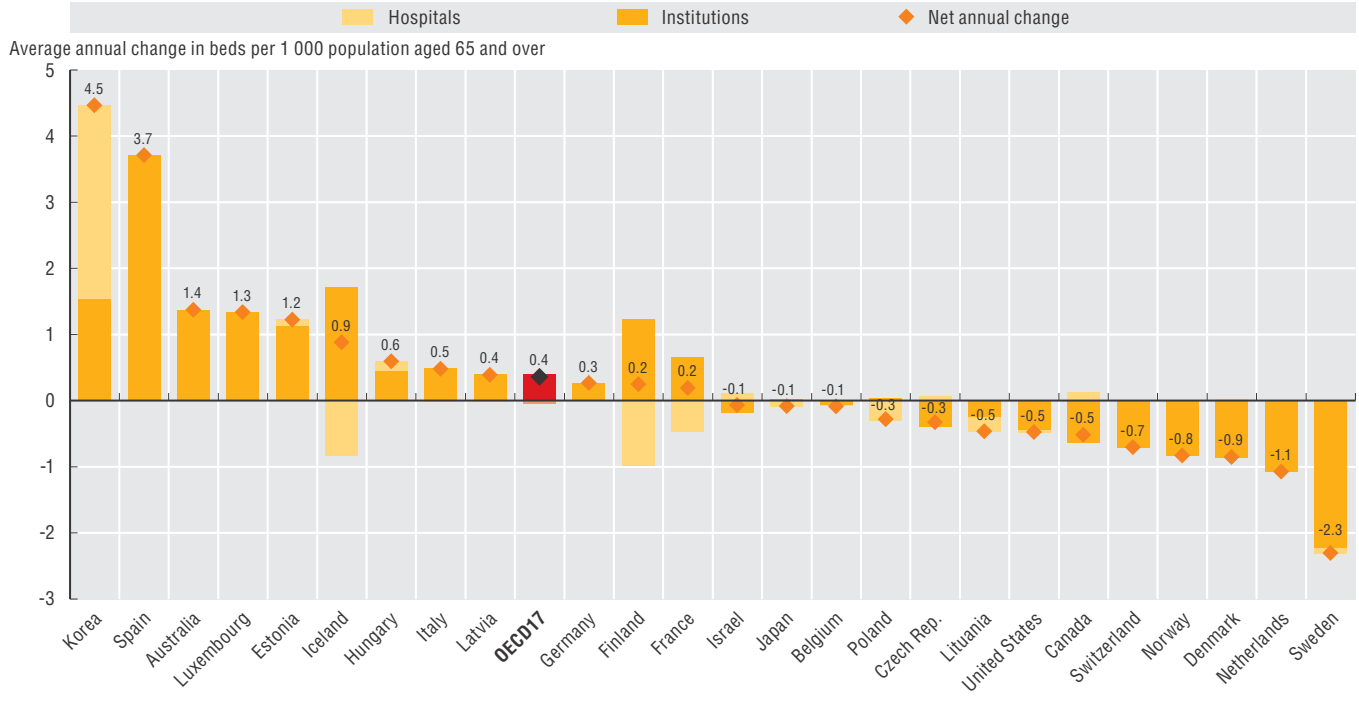
11.19. Long-term care beds in institutions and hospitals, 2013 (or nearest year)



Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281448

11.20. Trends in long-term care beds in institutions and in hospitals, 2000-13 (or nearest year)



Note: The OECD average includes only countries with data for both institutions and hospitals.
1. Australia, Germany, Luxembourg, the Netherlands, Norway and Switzerland do not report any long-term care beds in hospital.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281448

Information on data for Israel: *http://oe.cd/israel-disclaimer*

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, with population ageing leading to more people needing ongoing health and social care, rising incomes leading to higher expectations of quality of life in old age, the supply of informal care potentially shrinking and productivity gains difficult to achieve in such a labour-intensive sector (De La Maisonneuve and Oliveira Martins, 2013).

A significant share of LTC services is funded from public sources. Total public spending on LTC (including both the health and social care components) accounted for 1.7% of GDP on average across OECD countries in 2013 (Figure 11.21). The highest spender was the Netherlands, where public expenditure on long-term care was two and a half times greater than the OECD average, at 4.3% of GDP. At the other end of the scale, the Slovak Republic, Greece, Estonia, Hungary, the Czech Republic, Poland and Israel allocated less than 0.5% of their GDP to public provision of long-term care. This variation partly reflects differences in population structure, but mostly the development of formal LTC systems, as opposed to more informal arrangements based mainly on care provided by unpaid family members. Despite the problems of underreporting, privately-funded LTC expenditure plays a relatively large role in Switzerland (0.6% of GDP), Germany (0.6%) and Belgium (0.4%). As a share of total spending on LTC (including private and public health and social components), private spending accounts for more than a third in the United States (43%), Germany (37%) and Spain (36%). Most private spending is out-of-pocket, since private LTC insurance does not play an important role in any country.

The boundaries between health and social LTC spending are still not fully consistent across countries, with some reporting particular components of LTC as health care, while others view it as social spending. The Netherlands, Sweden, Norway and Denmark spend over 2% of GDP on the health part of LTC, which is double the OECD average. Finland has the highest level of public spending on social LTC, reaching 1.6% of GDP, much higher than the OECD average of 0.5%. The Netherlands and Japan spend more than 1% of GDP on social LTC, but this accounts for less than 0.1% of GDP in Korea, Spain and Luxembourg.

Public spending on LTC has grown rapidly in recent years in some countries (Figure 11.22). The annual growth rate in public expenditures on LTC was 4.0% between 2005 and 2013 across OECD countries, which is above the growth in health care expenditures over the same period. Countries such as Korea and Portugal have implemented measures to expand the comprehensiveness of their LTC systems in recent years and so have among the highest public spending growth rates since 2005, although spending in both countries remains relatively low as a share of GDP.

Many OECD countries have expanded the availability of home care services in order to allow people receiving LTC to remain more independent and part of their community. Between 2005 and 2013, the annual growth rate of public spending on home care matched spending growth for care in institutional care settings – at 4.3% per year (Figure 11.23). However, there were significant increases in home care spending of more than 7% per year in Korea, Estonia, Japan and France.

Projection scenarios suggest that public resources allocated to LTC as a share of GDP could double or more by 2060 (Colombo et al., 2011; De La Maisonneuve and Oliveira Martins, 2013). One of the main challenges in many OECD countries in the future will be to strike the right balance between providing appropriate social protection to people with LTC needs and ensuring that this protection is fiscally sustainable.

Definition and comparability

LTC spending comprises both health and social support services to people with chronic conditions and disabilities needing care on an on-going basis. Based on the System of Health Accounts (SHA), the health component of LTC spending relates to nursing and personal care services (i.e. assistance with activities of daily living (ADL)). It covers palliative care and care provided in LTC institutions or at home. LTC social expenditure primarily covers assistance with instrumental activities of daily living (IADL). Countries' reporting practices between the health and social components of LTC spending may differ. 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.

Data for the United States refer to institutional care only, so underestimate the total amount of public spending on long-term care services.

References

Colombo, F. et al. (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264097759-en*.

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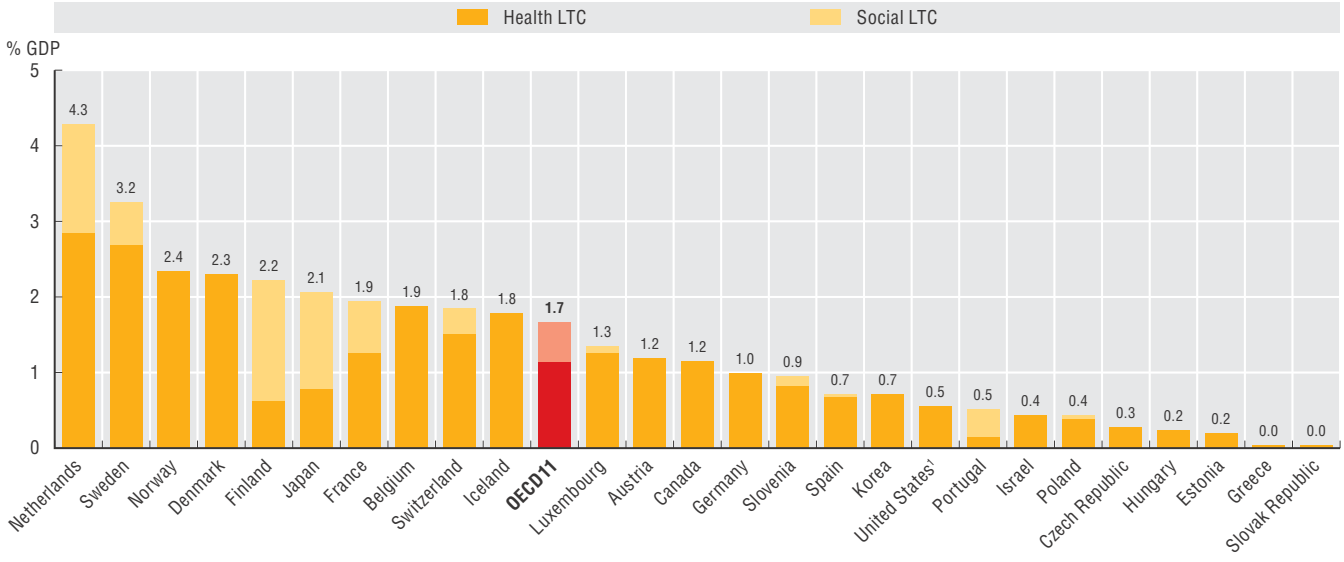
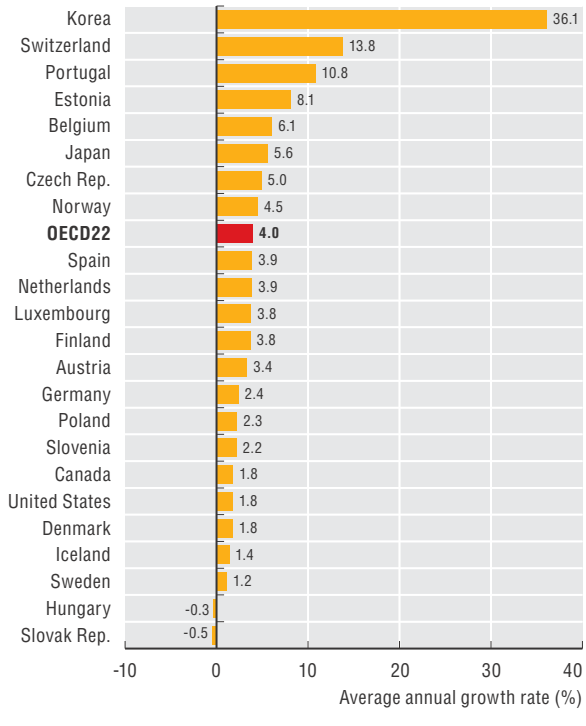
11.21. Long-term care public expenditure (health and social components), as share of GDP, 2013 (or nearest year)



Note: The OECD average only includes the eleven countries that report health and social LTC.
1. Figures for the United States refer only to institutional care.
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281455

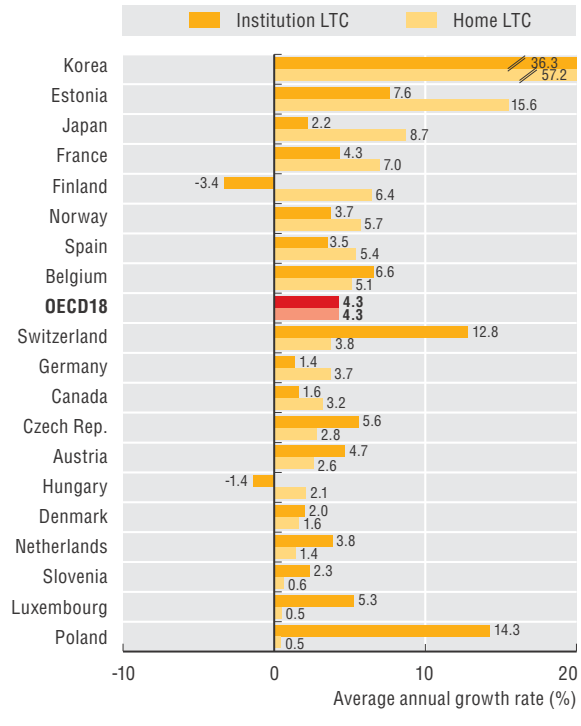
11.22. Annual growth rate in public expenditure on long-term care (health and social), in real terms, 2005-13 (or nearest year)



Note: The OECD average excludes Korea (due to the extremely high growth rate).
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281455

11.23. Annual growth rate in public expenditure on long-term care (health), by setting, in real terms, 2005-13 (or nearest year)



Note: The OECD average excludes Korea (due to the extremely high growth rate).
Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en.*

StatLink http://dx.doi.org/10.1787/888933281455

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ANNEX A

Additional information on demographic and economic context, and health expenditure and financing

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Table A.1. **Total population, mid-year, 1970 to 2014**

Thousands

	1970	1980	1990	2000	2010	2011	2012	2013	2014
Australia	12 507	14 695	17 065	19 028	22 032	22 340	22 724	23 132	23 524
Austria	7 467	7 549	7 678	8 012	8 363	8 392	8 430	8 479	8 503
Belgium	9 656	9 859	9 967	10 251	10 896	11 048	11 128	11 183	11 284
Canada	21 745	24 518	27 691	30 687	34 127	34 484	34 880	35 317	35 540
Chile	9 570	11 174	13 179	15 398	17 094	17 248	17 403	17 557	17 819
Czech Republic	9 858	10 304	10 333	10 255	10 474	10 496	10 511	10 514	10 527
Denmark	4 929	5 123	5 141	5 340	5 548	5 571	5 592	5 615	5 597
Estonia	1 360	1 477	1 569	1 397	1 331	1 327	1 323	1 318	1 316
Finland	4 606	4 780	4 986	5 176	5 363	5 388	5 414	5 439	5 460
France	50 772	53 880	56 709	59 062	62 918	63 223	63 514	63 790	64 360
Germany[1]	61 098	61 549	63 202	82 212	81 777	81 798	80 426	80 646	80 925
Greece	8 793	9 643	10 157	10 917	11 153	11 103	11 037	10 948	11 381
Hungary	10 338	10 711	10 374	10 211	10 000	9 972	9 920	9 893	9 843
Iceland	204	228	255	281	318	319	321	324	327
Ireland	2 957	3 413	3 514	3 805	4 560	4 577	4 587	4 598	4 610
Israel	2 958	3 878	4 660	6 289	7 624	7 766	7 910	8 057	8 186
Italy	53 822	56 434	56 719	56 942	59 277	59 379	59 540	60 234	60 789
Japan	103 721	117 061	123 613	126 927	128 058	127 799	127 515	127 296	127 083
Korea	32 241	38 124	42 869	47 008	49 410	49 779	50 004	50 220	50 424
Luxembourg	339	364	382	436	507	518	531	543	556
Mexico	50 628	66 737	87 065	100 896	114 256	115 683	117 054	118 395	119 713
Netherlands	13 039	14 150	14 952	15 926	16 615	16 693	16 755	16 804	16 858
New Zealand	2 828	3 170	3 390	3 858	4 366	4 404	4 433	4 472	4 388
Norway	3 876	4 086	4 241	4 491	4 889	4 953	5 019	5 080	5 137
Poland	32 664	35 574	38 111	38 259	38 043	38 063	38 063	38 040	38 037
Portugal	8 680	9 766	9 983	10 290	10 573	10 558	10 515	10 457	10 375
Slovak Republic	4 538	4 980	5 299	5 389	5 391	5 398	5 408	5 413	5 416
Slovenia	1 725	1901	1998	1989	2049	2053	2057	2060	2062
Spain	33 815	37 439	38 850	40 263	46 577	46 743	46 773	46 620	45 943
Sweden	8 043	8 311	8 559	8 872	9 378	9 449	9 519	9 600	9 699
Switzerland	6 181	6 319	6 716	7 184	7 825	7 912	7 997	8 089	8 188
Turkey	35 294	44 522	56 104	67 393	73 142	74 224	75 176	76 148	76 903
United Kingdom	55 663	56 314	57 248	58 893	62 766	63 259	63 700	64 107	64 091
United States	205 052	227 225	249 623	282 162	309 326	311 583	313 874	316 129	318 892
OECD (total)	**870 967**	**965 259**	**1 052 204**	**1 155 498**	**1 236 028**	**1 243 502**	**1 249 052**	**1 256 518**	**1 264 123**
Partners									
Brazil	96 078	118 563	146 593	171 280	193 253	194 933	196 526	198 043	199 492
China (People's Rep.)	814 423	984 122	1 165 429	1 280 429	1 359 822	1 368 440	1 377 065	1 385 567	1 393 784
Colombia	..	..	34 130	40 296	45 510	46 045	46 582	47 121	47 662
Latvia	2 359	2 512	2 663	2 368	2 098	2 060	2 034	2 013	1 994
Lithuania	3 140	3 413	3 698	3 500	3 097	3 028	2 988	2 958	3 163
India	555 064	698 721	868 891	1 042 262	1 205 625	1 221 156	1 236 687	1 252 140	1 267 402
Indonesia	114 080	145 510	178 633	208 939	240 677	243 802	246 864	249 866	252 812
Russian Federation	130 392	138 655	147 969	146 597	142 849	142 961	143 207	143 507	143 787
South Africa	22 502	29 077	36 793	44 846	51 452	51 949	52 386	52 776	53 140

1. Population figures for Germany prior to 1991 refer to West Germany.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink *http://dx.doi.org/10.1787/888933281510*

Table A.2. **Share of the population aged 65 and over, 1970 to 2014**

	1970	1980	1990	2000	2010	2011	2012	2013	2014
Australia	8.3	9.6	11.1	12.4	13.6	13.8	14.2	14.4	14.7
Austria	14.0	15.5	14.8	15.4	17.6	17.6	17.8	18.0	18.3
Belgium	13.3	14.3	14.8	16.7	17.1	17.0	17.3	17.5	17.7
Canada	7.9	9.4	11.3	12.6	14.2	14.5	14.9	15.2	15.6
Chile	5.0	5.5	6.1	7.2	9.0	9.3	9.5	9.8	10.0
Czech Republic	12.0	13.6	12.5	13.8	15.3	15.6	16.2	16.8	17.3
Denmark	12.1	14.3	15.6	14.8	16.3	16.8	17.3	17.8	18.3
Estonia	11.6	12.5	11.6	14.9	17.5	17.5	17.7	18.1	18.4
Finland	9.0	11.9	13.3	14.8	17.0	17.5	18.1	18.7	19.3
France	12.8	14.0	13.9	16.0	16.8	16.9	17.3	17.7	..
Germany	13.0	15.5	15.2	16.2	20.7	20.6	21.0	21.1	20.8
Greece	11.1	13.0	13.6	16.4	19.0	19.3	19.8	20.2	19.7
Hungary	11.5	13.5	13.2	15.0	16.6	16.8	16.9	17.2	17.6
Iceland	8.7	9.8	10.5	11.5	12.0	12.3	12.6	12.9	13.1
Ireland	11.1	10.7	11.4	11.1	11.2	11.5	11.9	12.2	12.6
Israel	6.7	8.6	9.1	9.8	9.9	10.0	10.3	10.7	10.9
Italy	10.7	13.1	14.7	18.1	20.4	20.5	20.8	21.0	21.4
Japan	7.1	9.1	12.1	17.4	23.0	23.3	24.1	25.1	26.0
Korea	3.1	3.8	5.1	7.2	11.0	11.4	11.8	12.2	12.7
Luxembourg	12.4	13.6	13.3	14.2	13.8	13.7	13.8	13.8	14.1
Mexico	4.6	4.3	4.3	5.2	6.2	6.3	6.4	6.5	6.7
Netherlands	10.1	11.4	12.7	13.5	15.3	15.5	16.2	16.8	17.3
New Zealand	8.4	9.7	11.2	11.8	13.0	13.3	13.8	14.2	14.8
Norway	12.8	14.6	16.3	15.2	14.8	15.0	15.3	15.6	15.8
Poland	8.2	10.1	9.9	12.1	13.6	13.6	14.0	14.4	14.9
Portugal	9.2	11.1	13.2	16.0	18.3	18.7	19.1	19.4	19.3
Slovak Republic	9.1	10.5	10.2	11.4	12.4	12.6	12.8	13.1	13.5
Slovenia	9.5	11.3	10.6	13.8	16.5	16.5	16.8	17.1	17.5
Spain	9.5	10.8	13.4	16.7	16.8	17.1	17.4	17.7	18.4
Sweden	13.5	16.2	17.7	17.3	18.0	18.4	18.7	19.0	19.3
Switzerland	11.2	13.8	14.5	15.2	16.7	16.8	17.1	17.3	17.5
Turkey	4.3	4.7	4.2	5.3	7.0	7.2	7.3	7.5	7.7
United Kingdom	12.9	14.9	15.7	15.8	16.2	16.4	16.7	17.1	17.6
United States	9.8	11.3	12.5	12.4	13.1	13.3	13.7	14.1	14.5
OECD34	**9.8**	**11.4**	**12.0**	**13.4**	**15.0**	**15.2**	**15.5**	**15.9**	**16.2**
Partners									
Brazil	3.5	4.0	4.4	5.4	6.8	7.0	7.2	7.4	7.6
China (People's Rep.)	4.0	5.1	5.8	6.9	8.4	8.5	8.7	8.9	9.1
Colombia	..	..	5.0	5.7	6.7	6.9	7.0	7.2	7.3
India	3.3	3.6	3.9	4.4	5.1	5.1	5.2	5.3	5.4
Indonesia	3.3	3.6	3.8	4.7	5.0	5.1	5.1	5.2	5.3
Latvia	11.9	13.0	11.8	14.9	18.3	18.5	18.7	18.9	18.7
Lithuania	9.9	11.3	10.8	13.8	17.6	18.0	18.2	18.3	17.2
Russia	7.7	10.2	10.0	12.4	12.8	12.7	12.9	13.0	13.3
South Africa	3.4	3.1	3.2	3.4	5.2	5.3	5.4	5.5	5.6

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

StatLink *http://dx.doi.org/10.1787/888933281523*

Table A.3. **GDP per capita in 2013 and average annual growth rates, 1970 to 2013**

	GDP per capita in USD PPP	Average annual growth rate per capita, in real terms				
	2013	1970-80	1980-90	1990-2000	2000-10	2010-2013
Australia	44 976	1.3	1.5	2.4	1.6	1.3
Austria	45 082	3.5	2.1	2.2	1.1	0.9
Belgium	41 573	3.2	1.9	2.0	0.9	-0.2
Canada	42 839	2.8	1.4	1.8	0.8	1.1
Chile	22 178	..	..	5.0	3.1	4.5
Czech Republic	28 739	..	..	0.6	3.0	0.0
Denmark	43 782	1.9	2.0	2.3	0.3	-0.4
Estonia	25 823	..	..	..	3.9	5.2
Finland	39 869	3.4	2.7	1.9	1.3	-0.5
France	37 671	3.0	2.0	1.7	0.6	0.4
Germany[1]	43 887	2.8	2.1	1.3	1.0	1.8
Greece	25 854	3.6	0.2	1.7	1.5	-5.9
Hungary	23 336	..	..	..	2.2	1.0
Iceland	42 035	5.2	1.6	1.6	1.5	1.8
Ireland	45 677	3.2	3.3	6.3	0.6	0.6
Israel	32 502	..	1.9	2.9	1.4	1.6
Italy	35 075	3.3	2.3	1.6	-0.1	-1.8
Japan	36 236	3.2	4.1	0.9	0.7	1.2
Korea	33 089	7.4	8.6	6.0	3.9	2.4
Luxembourg	91 048	1.9	4.5	3.6	1.1	-0.8
Mexico	16 891	3.7	-0.9	2.0	0.6	1.9
Netherlands	46 162	2.3	1.7	2.5	0.9	-0.6
New Zealand	34 899	1.0	1.2	1.7	1.3	1.5
Norway	65 640	4.1	1.2	4.0	0.9	1.6
Poland	23 985	..	..	3.7	4.0	2.7
Portugal	27 509	3.5	3.0	2.6	0.5	-2.1
Slovak Republic	26 497	..	..	..	4.8	1.8
Slovenia	28 859	..	..	1.9	2.4	-1.2
Spain	33 092	2.6	2.6	2.4	0.7	-1.3
Sweden	44 646	1.6	1.9	1.8	1.5	0.4
Switzerland	56 940	1.0	1.6	0.5	1.0	0.5
Turkey	18 508	..	..	1.8	3.0	3.6
United Kingdom	38 255	2.0	2.7	2.1	1.1	0.6
United States	53 042	2.1	2.4	2.2	0.7	1.3
OECD	**38 123**	**2.9**	**2.3**	**2.4**	**1.6**	**0.7**
Partners						
Brazil	16 192	..	-0.6	0.8	2.4	1.9
China (People's Rep.)	11 661	..	7.7	9.3	9.9	7.7
Colombia	12 695	..	1.5	1.0	2.8	4.0
Costa Rica	13 872	..	..	..	2.6	3.0
India	5 406	..	3.3	3.5	5.9	4.8
Indonesia	10 023	..	3.4	2.6	3.9	4.4
Latvia	22 958	..	..	..	5.2	6.1
Lithuania	25 715	..	..	.	5.4	6.0
Russian Federation	25 247	..	..	..	5.1	2.8
South Africa	12 553	..	-0.8	-0.1	1.9	1.0

1. Data prior to 1991 refers to Western Germany.

Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en. International Monetary Fund, World Economic Outlook Database, April 2015.

StatLink http://dx.doi.org/10.1787/888933281533

Table A.4. **Health expenditure per capita in 2013, average annual growth rates, 2009 to 2013**

	Health expenditure per capita in USD PPP	Annual growth rate per capita in real terms[1]				
	2013	2009/10	2010/11	2011/12	2012/13	2005-13
Australia[2]	3 866	-0.6	3.8	2.9	..	2.5
Austria	4 553	1.5	0.5	2.3	-0.3	1.6
Belgium	4 256	-0.8	2.7	0.1	0.1	1.8
Canada	4 351	2.0	-1.3	0.3	0.1	1.9
Chile[3]	1 606	6.0	5.1	6.1	8.3	5.9
Czech Republic	2 040	-3.1	2.5	-0.1	-0.2	2.5
Denmark	4 553	-1.4	-1.4	0.2	-0.5	1.3
Estonia	1 542	-4.3	0.8	..	4.4	3.9
Finland	3 442	1.6	2.3	0.8	0.2	1.5
France	4 124	0.8	..	0.6	1.2	1.2
Germany	4 819	3.0	0.8	2.7	1.7	2.4
Greece	2 366	-10.9	-2.8	-12.2	-2.5	-2.3
Hungary	1 719	4.4	1.9	-2.2	-0.6	-0.8
Iceland	3 677	-6.1	0.1	1.3	3.4	0.0
Ireland[2]	3 663	-8.7	-4.1	1.1	..	1.2
Israel	2 428	3.1	2.9	5.7	2.8	2.7
Italy	3 077	1.1	-0.9	-3.0	-3.5	-0.6
Japan	3 713	5.2	4.9	3.0	..	3.7
Korea	2 275	8.1	4.0	4.4	5.3	7.2
Luxembourg[2]	4 371	-2.2	-5.8	-5.0	..	-2.1
Mexico	1 048	1.3	-2.1	5.9	2.0	1.7
Netherlands	5 131	2.3	1.7	3.2	-0.3	2.5
New Zealand	3 328	0.4	0.8	2.7	-1.3	2.4
Norway[4]	5 862	-0.1	2.6	1.9	0.6	1.6
Poland	1 530	..	2.0	1.2	3.8	5.8
Portugal	2 514	1.1	-4.8	-5.0	-3.2	-0.9
Slovak Republic	2 010	..	-2.4	4.4	0.0	6.7
Slovenia	2 511	0.9	0.1	-0.8	-1.4	1.4
Spain	2 898	-0.1	-0.6	-2.4	-3.8	1.0
Sweden	4 904	-0.3	..	1.4	2.0	1.4
Switzerland	6 325	..	2.1	3.5	1.9	1.9
Turkey	941	-1.2	1.2	-0.7	5.4	3.0
United Kingdom	3 235	-1.3	-0.1	0.3	0.6	1.7
United States	8 713	1.9	1.0	1.6	1.5	1.9
OECD	**3 453**	**0.1**	**0.6**	**0.8**	**0.9**	**2.0**
Partners						
Brazil[5]	1 471	7.7	2.4	..	..	4.2
China (People's Rep.)[5]	649	6.1	12.3	12.5	..	12.0
Colombia[5]	864	-1.0	1.9	7.4	..	5.9
Costa Rica[5]	1 380	..	..	..	..	..
India[5]	215	..	..	..	..	..
Indonesia[5]	293	9.2	3.8	11.8	5.3	6.2
Latvia	1 216	-1.8	-1.8	2.5	3.7	1.7
Lithuania	1 573	-3.7	3.4	1.9	1.3	4.9
Russian Federation [5]	1 653	-4.0	1.4	-0.3	1.8	6.3
South Africa[5]	1 121	1.9	2.0	5.3	1.3	2.1

1. Using national currency units at 2005 GDP price level.
2. Latest year 2012.
3. CPI is used as deflator.
4. GDP deflator refers to Mainland Norway.
5. Including investment.

Source: OECD Health Statistics 2015, *http://dx.doi.org/10.1787/health-data-en*; WHO Global Health Expenditure Database.

StatLink *http://dx.doi.org/10.1787/888933281543*

Table A.5. **Expenditure on health, percentage of GDP, 1980-2013**

	1980	1990	2000	2010	2011	2012	2013
Australia	5.8	6.5	7.6	8.5	8.6	8.8 e	..
Austria	7.0 |	7.7	9.2	10.1	9.9	10.1	10.1
Belgium	6.2	7.1 |	8.0 |	9.9	10.1	10.2	10.2 e
Canada	6.6	8.4	8.3	10.6	10.3	10.2	10.2
Chile	..	..	6.4	6.7	6.7	7.0	7.3
Czech Republic	..	3.8 |	5.7 |	6.9	7.0	7.1	7.1
Denmark	8.4	8.0	8.1 |	10.4	10.2	10.4	10.4
Estonia	..	..	5.2	6.1	5.7 |	5.8	6.0
Finland	5.9	7.2 |	6.7	8.2	8.2	8.5	8.6
France	6.7	8.0 |	9.5 |	10.8 |	10.7	10.8	10.9
Germany	8.1	8.0 |	9.8	11.0	10.7	10.8	11.0
Greece	..	6.0	7.2	9.2 e	9.7 e	9.1 e	9.2 e
Hungary	..	.. |	6.8 |	7.7	7.6	7.5	7.4
Iceland	5.8	7.4	9.0	8.8	8.6	8.7	8.7
Ireland	7.5	5.6	5.6	8.5	8.0	8.1	..
Israel	7.0	6.6	6.8	7.0	7.0	7.4 e	7.5 e
Italy	..	7.0 |	7.6	8.9	8.8	8.8	8.8
Japan	6.4	5.8	7.4	9.5	10.0	10.1	10.2 e
Korea	3.5	3.7	4.0	6.5	6.5	6.7	6.9
Luxembourg	..	..	5.9	7.2	6.8	6.6	..
Mexico	..	4.3 |	4.9 |	6.2	5.9	6.1	6.2
Netherlands	6.6	7.1 |	7.0 |	10.4	10.5	11.0	11.1
New Zealand	5.7	6.7	7.5 |	9.7 e	9.7 e	9.8 e	9.5 e
Norway	5.4	7.1 |	7.7 |	8.9	8.8	8.8	8.9
Poland	..	4.3	5.3 |	6.5	6.3	6.3	6.4
Portugal	4.8	5.5 |	8.3	9.8	9.5	9.3	9.1
Slovak Republic	..	..	5.3 |	7.8	7.5	7.7	7.6
Slovenia	..	..	8.1 |	8.6	8.5	8.7	8.7
Spain	5.0	6.1 |	6.8 |	9.0	9.1	9.0	8.8
Sweden	..	7.3 |	7.4 |	8.5 |	10.6	10.8	11.0
Switzerland	6.6	7.4 |	9.3 |	10.5	10.6	11.0	11.1
Turkey	2.4	2.5 |	4.7	5.3	5.0	5.0	5.1
United Kingdom	5.1	5.1	6.3	8.6	8.5	8.5	8.5
United States	8.2	11.3	12.5	16.4	16.4	16.4	16.4
OECD	**6.1**	**6.5**	**7.2**	**8.8**	**8.8**	**8.9**	**8.9**
Partners							
Brazil[1]	..	..	7.0	8.7	8.7	8.9	9.1
China (People's Rep.)[1]	..	..	4.6	5.0	5.1	5.4	5.6
Colombia[1]	..	..	5.9	6.8	6.5	6.8	6.8
Costa Rica[1]	..	..	7.1	9.7	10.2	10.1	9.9
India[1]	..	..	4.3	3.8	3.9	3.9	4.0
Indonesia[1]	..	..	1.8	2.7	2.7	2.9	2.9
Latvia	..	..	..	6.1	5.6	5.4	5.3
Lithuania	..	..	..	6.8	6.5	6.3	6.1
Russian Federation[1]	..	..	5.4	6.9	6.7	6.5	6.5
South Africa[1]	..	..	8.3	8.7	8.6	8.9	8.9

| Break in series.
e: Preliminary estimate.
1. Including investment.
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en; WHO Global Health Expenditure Database.
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(81 2015 07 1 P) ISBN 978-92-64-23257-0 – 2015

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ISBN 978-92-64-23257-0
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