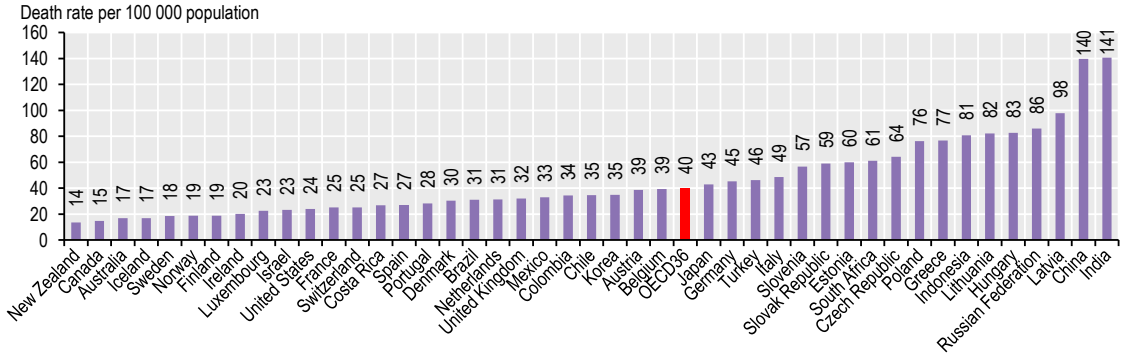
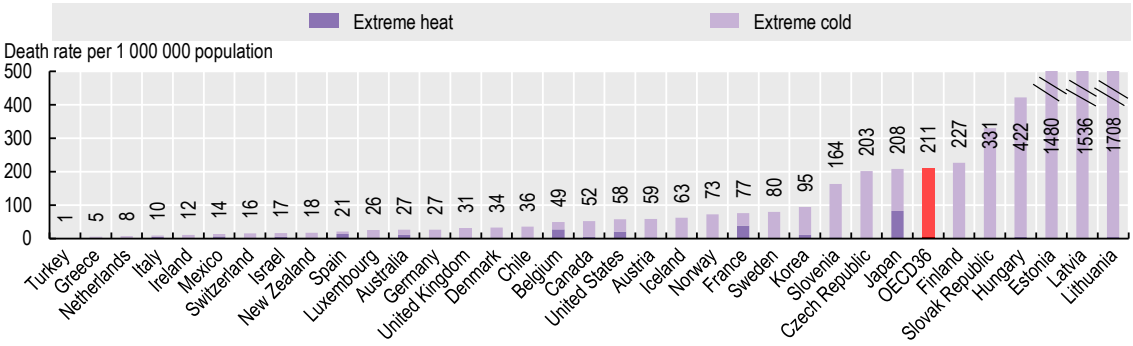
Figure 4.16. **Ambient and household air pollution attributable death rate, 2016**



Source: Global Health Observatory data repository, WHO.

StatLink https://doi.org/10.1787/888934015562

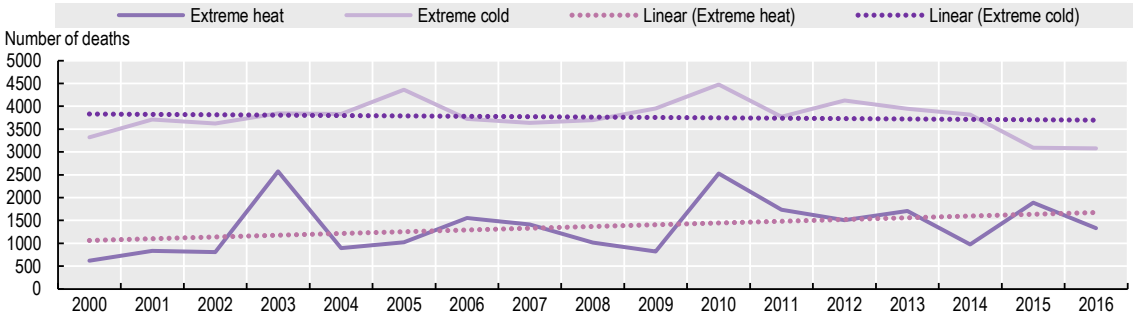
Figure 4.17. **Cumulative death rate due to extreme heat and extreme cold temperatures, 2000-17**



Note: Lithuania, Latvia and Estonia show cumulative death rates higher than 500 per 1 000 000. The graph is truncated at this level to allow better comparability.
Source: WHO Mortality Database.

StatLink https://doi.org/10.1787/888934015581

Figure 4.18. **Number of deaths due to extreme heat and extreme cold temperatures in OECD36, 2000-16**



Source: WHO Mortality Database.

StatLink https://doi.org/10.1787/888934015600

5. ACCESS TO CARE

Population coverage for health care

Extent of health care coverage

Use of primary care services

Unmet need for health care

Financial hardship and out-of-pocket 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.

Population coverage for health care

The share of a population covered for a core set of health services offers an initial assessment of access to care and financial protection. However, it is only a partial measure of accessibility and coverage, focusing on the number of people covered. Universal health coverage also depends on the range of services covered and the degree of cost sharing for these services. Such services also need to be of sufficient quality. Indicators in this chapter focus on access and different dimensions of coverage, while Chapter 6 provides indicators on quality and outcomes of care.

Most OECD countries have achieved universal (or near-universal) coverage for a core set of health services, which usually include consultations with doctors, tests and examinations, and hospital care (Figure 5.1). National health systems or social health insurance have typically been the financing schemes for achieving universal health coverage. A few countries (the Netherlands, Switzerland) have obtained universality through compulsory private health insurance – supported by public subsidies and laws on the scope and depth of coverage. In Greece, a new law in 2016 closed the coverage gap for the 10% of the population who were previously uninsured.

Population coverage for core services remains below 95% in seven OECD countries, and is lowest in Mexico, the United States and Poland. Mexico has expanded coverage since 2004, but gaps remain. In the United States, the uninsured tend to be working-age adults with lower education or income levels – the share of people uninsured decreased sharply from about 13% in 2013 to 9% in 2015 (United States Census Bureau, 2018[1]), but has remained relatively unchanged since then. In Poland, the majority of uninsured are citizens living abroad. In Ireland, though coverage is universal, less than half of the population are covered for the cost of GP visits.

In some countries, citizens can purchase additional health coverage through voluntary private insurance. This can cover any cost sharing left after basic coverage (complementary insurance), add further services (supplementary insurance) or provide faster access or larger choice of providers (duplicate insurance). Eight OECD countries have additional private insurance coverage for over half of the population (Figure 5.2). In France, nearly all of the population (96%) have complementary insurance to cover cost sharing in the social security system – with public subsidies making it free or at reduced rates for poor households. Complementary insurance is also widely used in Belgium, Slovenia and Korea. Israel and the Netherlands have the largest supplementary market (over 80% of the population), whereby private insurance pays for dental care, physiotherapy, certain prescription drugs and other services not publicly reimbursed. Duplicate private health insurance, providing faster private sector access to medical services where there are waiting times in public systems, are largest in Ireland and Australia. In the United States, 8% of the population has complementary private health insurance. This is in addition to the 55% of the population with primary private health insurance.

Over the last decade, the population covered by additional private health insurance has increased in 18 of 27 OECD countries with comparable data, though these increases have often been small. Changes have been most marked in Korea, Denmark, Slovenia and Finland (Figure 5.3). Note that in Slovenia increases were mainly due to one insurance company adding free supplementary health insurance to its insurance portfolio. Several factors determine how additional private health insurance evolves, notably the extent of gaps in access to publicly financed services and government interventions directed at private health insurance markets.

Definition and comparability

Population coverage for health care is defined here as the share of the population eligible for a core set of health care services – whether through public programmes or primary private health insurance. The set of services is country-specific but usually includes consultations with doctors, tests and examinations, and hospital care. Public coverage includes both national health systems and social health insurance. On national health systems, most of the financing comes from general taxation, whereas in social health insurance systems, financing typically comes from a combination of payroll contributions and taxation. Financing is linked to ability-to-pay. Primary private health insurance refers to insurance coverage for a core set of services, and can be voluntary or mandatory by law (for some or all of the population). Additional private health insurance is always voluntary. Private insurance premiums are generally not income-related, although the purchase of private coverage may be subsidised by government.

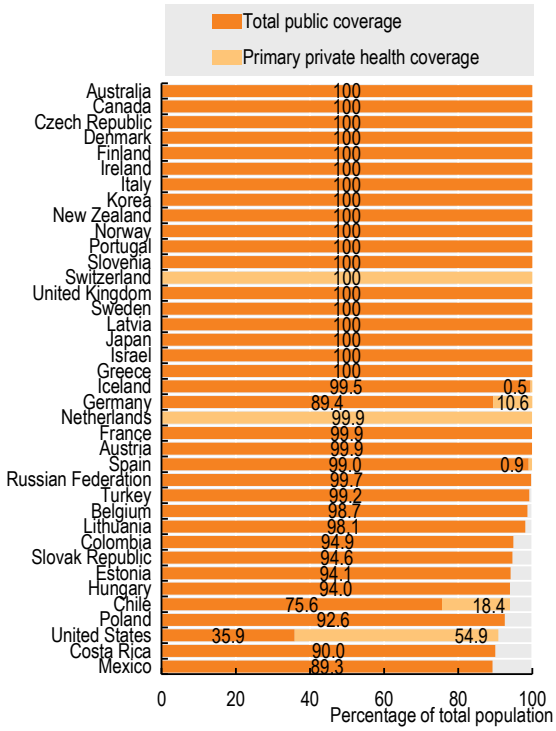
References

[3] OECD (2016), *OECD Reviews of Health Systems: Mexico*, OECD Publishing, Paris, *https://doi.org/10.1787/9789264230491-en*.

[2] OECD/European Observatory on Health Systems and Policies (forthcoming), *Greece, Ireland, Poland, Country Health Profiles 2019, State of Health in the EU*.

[1] United States Census Bureau (2018), *Health Insurance Coverage in the United States*.

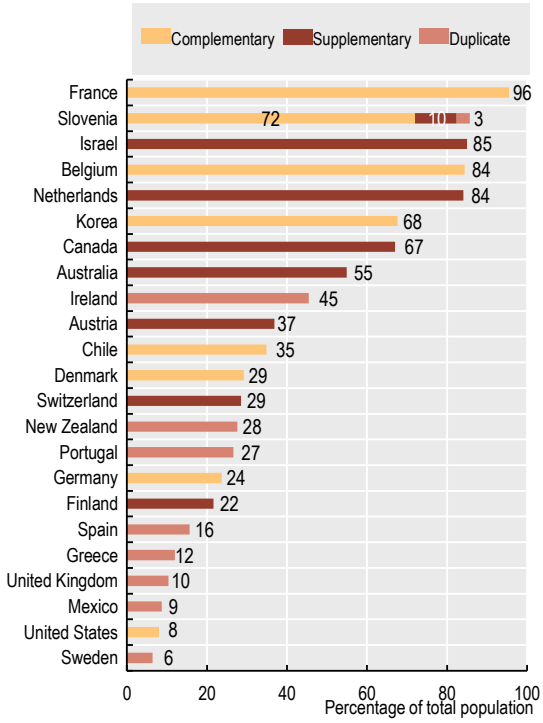
Figure 5.1. **Population coverage for a core set of services, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015619

Figure 5.2. **Voluntary private health insurance coverage by type, 2017 (or nearest year)**

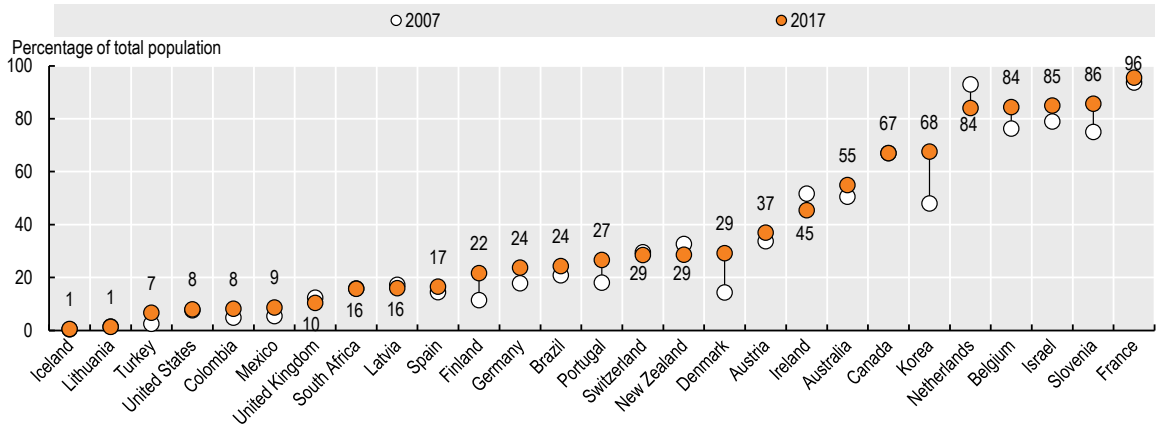


Note: Private health insurance can be both duplicate and supplementary in Australia; complementary and supplementary in Denmark and Korea; and duplicate, complementary and supplementary in Israel and Slovenia. In the United States, 55% of the population also has primary private health insurance.

Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015638

Figure 5.3. **Trends in private health insurance coverage, 2007 and 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015657

Extent of health care coverage

In addition to the share of the population entitled to core health services, the extent of health care coverage is defined by the range of services included in a publicly defined benefit package and the proportion of costs covered. Figure 5.4 assesses the extent of overall coverage, as well as coverage for selected health care services, by computing the share of expenditure covered under government schemes or compulsory health insurance. Differences across countries in the extent of coverage can be due to specific goods and services being included or excluded in the publicly defined benefit package (e.g. a particular drug or medical treatment); different cost-sharing arrangements; or some services only being covered for specific population groups in a country (e.g. dental treatment).

On average across OECD countries, almost three-quarters of all health care costs were covered by government or compulsory health insurance schemes. This share rose above 80% in ten countries (Norway, Germany, Japan, Denmark, Luxembourg, Sweden, France, the Czech Republic, Iceland, the Netherlands). However, in Mexico, Latvia and Korea less than 60% of all costs are covered by publicly mandated schemes. Coverage is also comparatively low in the Russian Federation.

Inpatient services in hospitals are more comprehensively covered than any other type of care. Across the OECD, 88% of all inpatient costs are borne by government or compulsory insurance schemes. In many countries, patients have access to free acute inpatient care or only have to make a small co-payment. As a result, coverage rates are near 100% in Sweden, Norway, Iceland and Estonia. Only in Korea, Mexico, Greece, Australia and Ireland is the financial coverage for the cost of inpatient care 70% or lower. In some of those countries, patients frequently choose treatment in private facilities where coverage is not (fully) included in the public benefit package.

More than three-quarters of spending on outpatient medical care in OECD countries are borne by government and compulsory insurance schemes (77%). Coverage ranged from under 60% in Korea and Italy, to over 90% in the Slovak Republic, Denmark and the Czech Republic. Outpatient primary and specialist care are generally free at the point of service, but user charges may still apply for specific services or if non-contracted private providers are consulted. This is for example the case in Denmark, where 92% of total costs are covered but user charges exist for visits to psychologists and physiotherapists, and the United Kingdom (85%), where care provision outside of NHS commissioned services are not covered.

Public coverage for dental care costs is far more limited across the OECD due to restricted service packages (frequently limited to children) and higher levels of cost-sharing. On average only around 30% of dental care costs are borne by government schemes or compulsory insurance. More than half of dental spending is covered in only three OECD countries (Japan, Germany and the Slovak Republic). In Greece and Spain, dental care costs for adults without any specific entitlement are not covered. Voluntary health insurance may play an important role in providing financial protection when dental care is not comprehensively covered in the benefit package (e.g. the Netherlands).

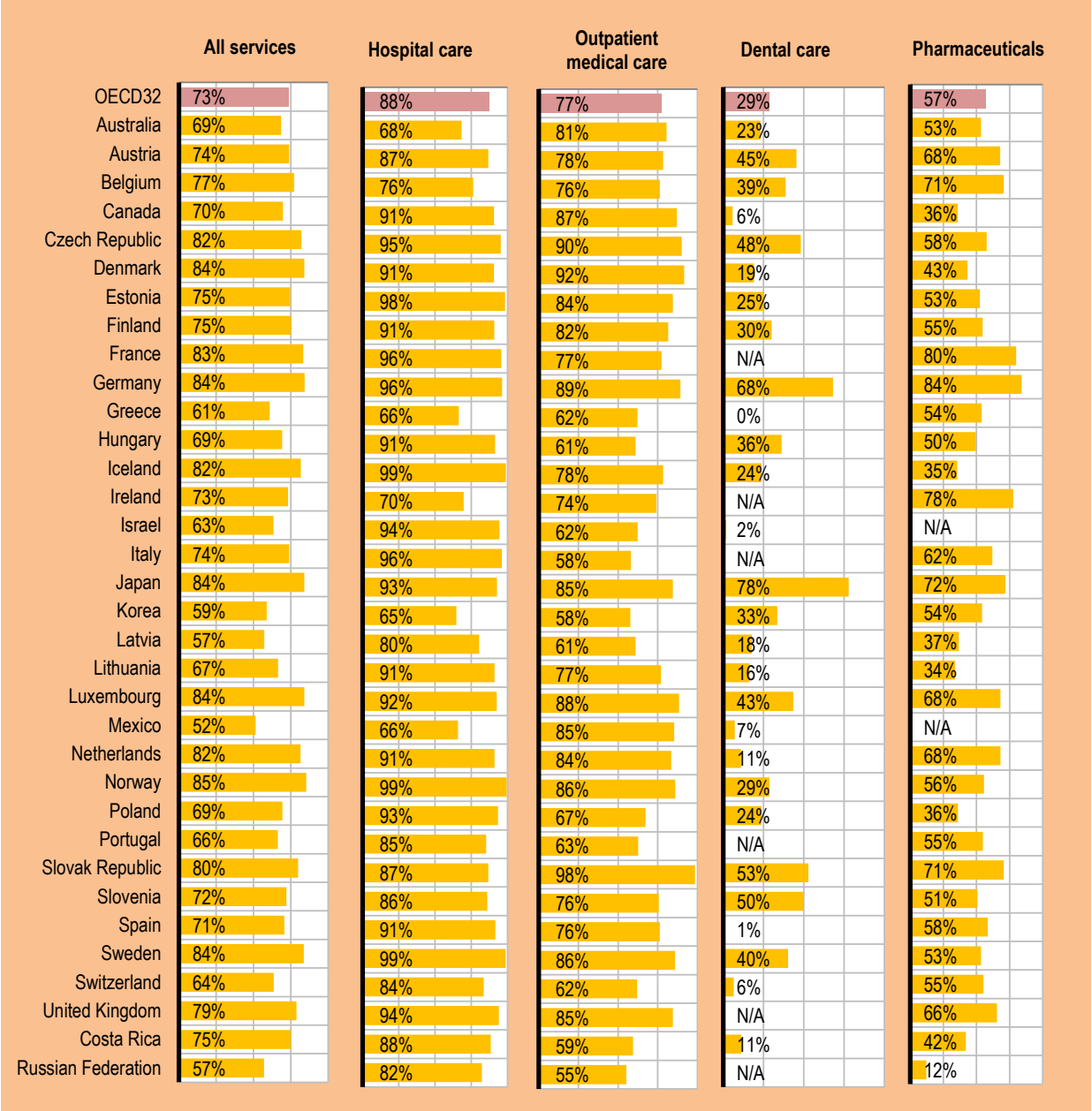
Coverage for pharmaceuticals is also typically less comprehensive than for inpatient and outpatient care: across the OECD, around 57% of pharmaceutical costs are covered by government or compulsory insurance schemes. This share is less than 40% in Lithuania, Iceland, Poland, Canada and Latvia. Coverage is most generous in Germany (84%), followed by France (80%) and Ireland (78%). Over-the-counter medications – which by their nature are not usually covered by public schemes – play an important role in some countries (see indicator "Pharmaceutical Expenditure" in Chapter 10).

Definition and comparability

Health care coverage is defined by the share of the population entitled to services, the range of services included in a benefit package and the proportion of costs covered by government schemes and compulsory insurance schemes. Coverage provided by voluntary health insurance and other voluntary schemes such as charities or employers is not considered. The core functions analysed here are defined based on definitions in the System of Health Accounts 2011. Hospital care refers to inpatient curative and rehabilitative care in hospitals, outpatient medical care to all outpatient curative and rehabilitative care excluding dental care, pharmaceuticals to prescribed and over-the-counter medicines including medical non-durables.

Comparing the shares of the costs covered for different types of services is a simplification. For example, a country with more restricted population coverage but a very generous benefit basket may display a lower share of coverage than a country where the entire population is entitled to services but with a more limited benefit basket.

Figure 5.4. **Extent of coverage in OECD countries, 2017 (or nearest year)**
Government and compulsory insurance spending as proportion of total health spending by type of care



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015676

Use of primary care services

Primary care services are the main entry point into health systems. Indicators on the use of such services therefore provide a critical barometer of accessibility, with data disaggregated by income illustrating the degree of inequalities in access.

In terms of access to a doctor, on average just under 80% of individuals aged 15 or over reported visiting a doctor in the past year, adjusting for need (Figure 5.5). Note that need is modelled, rather than measured directly (see definition and comparability box). Furthermore, the probability of visiting a doctor may be lower in some countries because people make greater use of other types of health professionals, such as nurses. Notwithstanding these issues, cross-country differences in utilisation are large, with need-adjusted probabilities of visiting a doctor ranging from around 65% in Sweden and the United States to 89% in France.

Socioeconomic inequalities in accessing a doctor are evident within almost all OECD countries. Excepting Denmark and the Slovak Republic, wealthier individuals are more likely to see a doctor than individuals in the lowest income quintile, for a comparable level of need. Pro-rich inequalities in doctor access are highest in Finland and the United States (over 15 percentage-points difference) but practically non-existent in the United Kingdom, Ireland and the Netherlands. Income inequalities in accessing doctors are much more marked for specialists than for general practitioners (OECD, 2019 [1]).

For dental care, only 63% of individuals aged 15 or over reported visiting a dentist in the past year, on average across 27 OECD countries (Figure 5.6). This is partly due to benefit design: public coverage for dental care is much lower than for hospital care or doctor consultations in many OECD countries (see indicator on "Extent of health care coverage"). Overall access to dental care ranged from 41% of people visiting a dentist in the United States, to 93% in Ireland. Socioeconomic disparities are large – on average, there is an almost 20 percentage-point difference in visits between high and low-income groups (72% of wealthier individuals visited a dentist, compared with 54% among those from the lowest income quintile). Inequalities are largest in Canada, Portugal and the United States (over 30 percentage-point difference); but almost zero in Ireland.

Uptake of cancer screening is also lower amongst the less well-off. This is despite most OECD countries providing screening programmes at no cost. For example, on average 79% of wealthier women had a Pap smear test for cervical cancer, as compared with 65% amongst women from the lowest income quintile (Figure 5.7). Wealthier people also have greater access to screening for both breast and colorectal cancer, though inequalities are less marked than for cervical cancer. Screening for cervical cancer is disproportionately low among the bottom income group in Sweden and Norway (over 30 percentage-point gap between income quintiles), but relatively equal in Ireland, Chile and Iceland. Overall uptake of cervical cancer screening ranged from just under 50% in the Netherlands, to over 85% in the Czech Republic and Austria. This applies to women aged 20 to 69 with a screening interval of three years. Note that some countries (e.g. the Netherlands) offer screening amongst a narrower age group and less frequently. This may result in lower screening rates but not necessarily worse performance. Countries offering nationwide population-based screening programmes have more equal access, as compared with countries where cancer screening happens in a more ad-hoc manner (Palencia, 2010[2])

Such observed problems in accessing health services, particularly for the less well-off, occur despite most OECD countries having universal or near-universal coverage for a core set of services (see indicator on "Population coverage for health care"). Part of the explanation are high cost sharing, exclusion of some services from benefit packages or implicit rationing of services. Limitations in health literacy, imperfect communication strategies, and low quality of care are also contributing factors.

Definition and comparability

The health care module of the European Health Interview Survey (EHIS) and of national surveys allows respondents to report on their utilisation of health care services, whether they have visited a GP, specialist or dentist in the past year, as well as their use of various screening services.

The probability of visiting a doctor is defined as having seen a GP or a specialist in the past year. However, the volume of care a person receives in itself does not accurately measure access, as people have varying health care needs. Need is not measured directly. Rather, predicted needs are modelled, and then the probability of visiting a doctor is adjusted by this value (see O'Donnell (2008[3]) for further methodological details). Here, four categorical variables are used to model predicted need: age, sex, self-rated health and activity limitations.

Cervical cancer screening is defined as the proportion of women aged 20-69 who have undergone a Pap smear test in the past 3 years.

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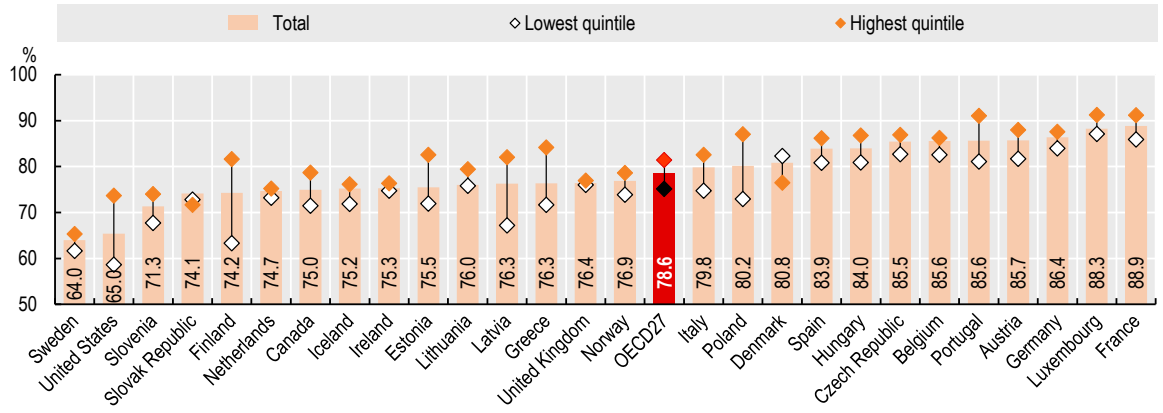
[3] O'Donnell, O. (2008), *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*, World Bank Group, Washington D.C., *http://dx.doi.org/10.1596/978-0-8213-6933-3*.

[1] OECD (2019), *Health for everyone? Social Inequalities in Health and Health Systems*, OECD Health Policy Studies, OECD Publishing, Paris, *https://doi.org/10.1787/3c8385d0-en*.

[2] Palencia, L. (2010), "Socio-economic inequalities in breast and cervical cancer screening practices in Europe: influence of the type of screening program", *International Journal of Epidemiology*, Vol. 39/3, pp. 757-765.

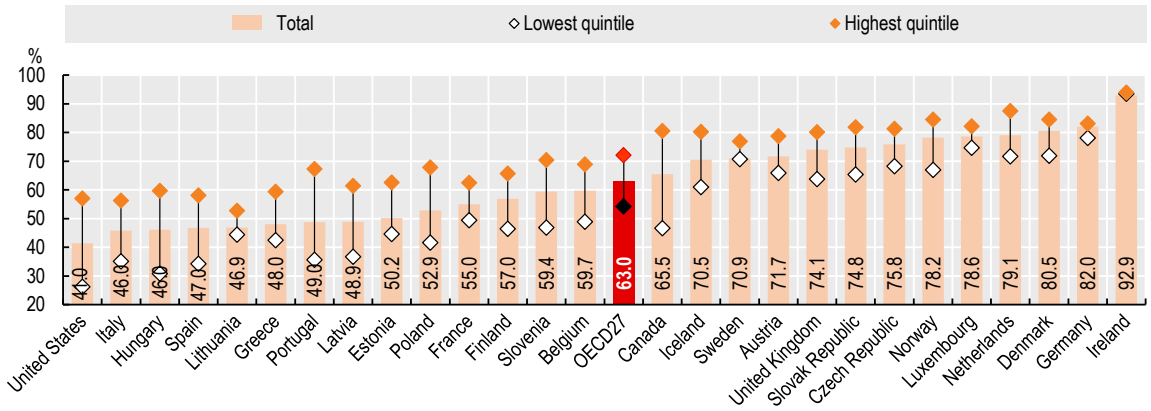
Figure 5.5. **Need-adjusted probability of visiting a doctor, by income, 2014**



Source: OECD estimates based on EHIS-2 and other national survey data.

StatLink https://doi.org/10.1787/888934015695

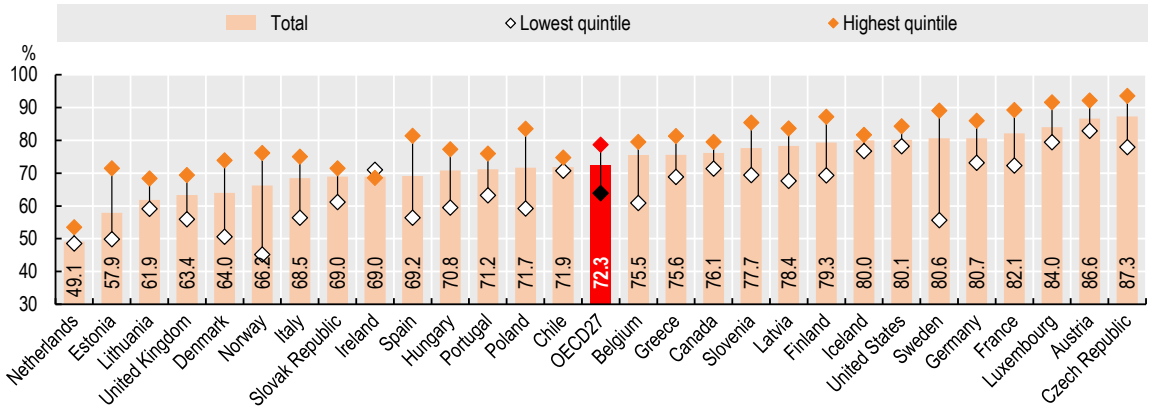
Figure 5.6. **Share of the population who visited a dentist, by income, 2014**



Source: OECD estimates based on EHIS-2 and other national survey data.

StatLink https://doi.org/10.1787/888934015714

Figure 5.7. **Share of women aged 20-69 screened for cervical cancer, by income, 2014**



Source: OECD estimates based on EHIS-2 and other national survey data.

StatLink https://doi.org/10.1787/888934015733

Unmet need for health care

People should be able to access health services when they need to, irrespective of their socio-economic circumstances. This is a fundamental principle underpinning all health systems across the OECD. Yet a quarter of individuals aged 18 or older report unmet need (defined as forgoing or delaying care) because limited availability or affordability of services compromise access, on average across 23 OECD countries. People may also forgo care because of fear or mistrust of health service providers. Strategies to reduce unmet need, particularly for the less well-off, need to tackle both financial and non-financial barriers to access (OECD, 2019[1]).

Looking specifically at availability of services, just over 20% of respondents reported unmet need due to waiting times and/or transportation difficulties (Figure 5.8). The share of the population delaying or forgoing care is comparatively high in Luxembourg, Italy, Ireland and Iceland (above 30%); but much lower in Norway (5%) and the Slovak Republic (7%). In response to this accessibility constraint, telemedicine initiatives are becoming more popular in many OECD countries (Hashiguchi Cravo Oliveira, forthcoming[2]). Socioeconomic disparities are significant: on average, 23% of people from the lowest income quintile report availability-related unmet need compared with 18% for richer individuals. This income gradient is largest in Finland, Italy and Portugal. In Slovenia, Poland and Estonia, richer individuals report slightly more unmet need than the less well-off, with results driven by the better-off being more likely to report waiting times as a cause of unmet need.

In terms of affordability, 17% of respondents delayed or did not seek needed care because the costs were too high for them (Figure 5.9). Across countries, unmet need due to such financial reasons ranged from less than 7% of the population in the Netherlands, the Czech Republic, the United Kingdom and Norway, to over 30% in Estonia, Ireland and Latvia. Affordability-related inequalities are more marked than inequalities related to availability of services. On average, 28% of people in the lowest income quintile forgo care for financial reasons compared with 9% for richer individuals. That is, the least well-off are three times more likely than the better-off to have unmet need for financial reasons.

Amongst people aged 65 or older, affordability constraints are slightly less marked than for the population as a whole. The proportion of cost-related reported unmet need is lower among older people, on average (14% compared to 17% across the OECD) and in most countries (17 out of 23). Income inequalities are also less marked among older individuals. Although older people from the top income quintile report similar levels of forgone care to the overall top quintile (8% and 9% respectively), older people from the bottom income quintile report significantly lower levels on average (20% compared to 27%).

Definition and comparability

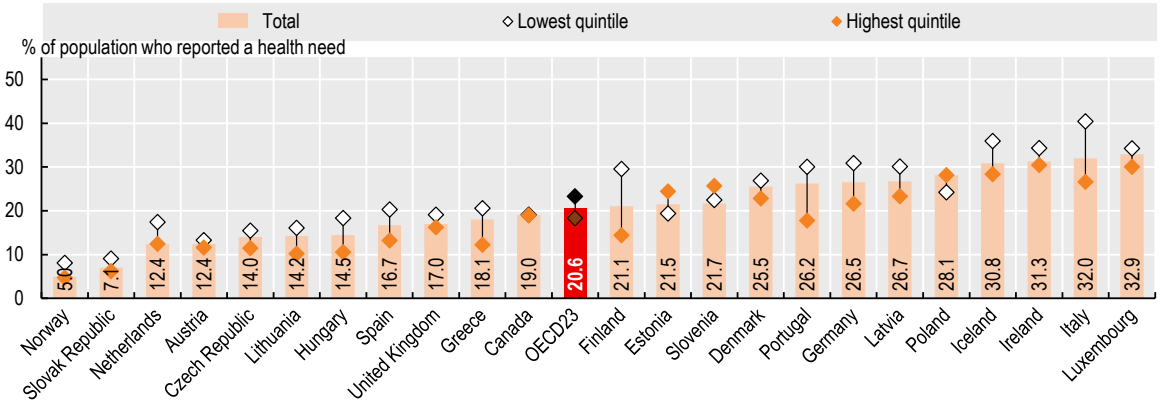
The health care module of the European Health Interview Survey (EHIS) and of national surveys allows respondents to report on their utilisation of health care services, as well as potential barriers experienced when trying to access these services. The probability of reporting an unmet need due to availability issues is based on two of the available variables: unmet need due to long waiting lists or to physical accessibility (distance or transportation). The probability to report forgone care due to financial reasons aggregates unmet need for four different types of service (medical, dental and mental health services, and prescription drugs). Respondents who reported not having a health care need in the past 12 months were excluded from the sample. Probabilities thus reflect the proportion of people reporting an unmet need, among individuals that have reported a need, satisfied or not (rather than the total population surveyed). This leads to higher estimates than surveys where unmet needs are calculated as a share of the total population – as is done, for example, with the EU-SILC survey.

References

[2] Hashiguchi Cravo Oliveira, T. (forthcoming), "Is telemedicine leading to more cost-effective, integrated and people-centred care in the OECD?", *OECD Health Working Papers*, OECD Publishing, Paris.

[1] OECD (2019), *Health for Everyone? Social inequalities in health and health systems*, OECD Publishing, Paris, *https://doi.org/10.1787/3c8385d0-en*.

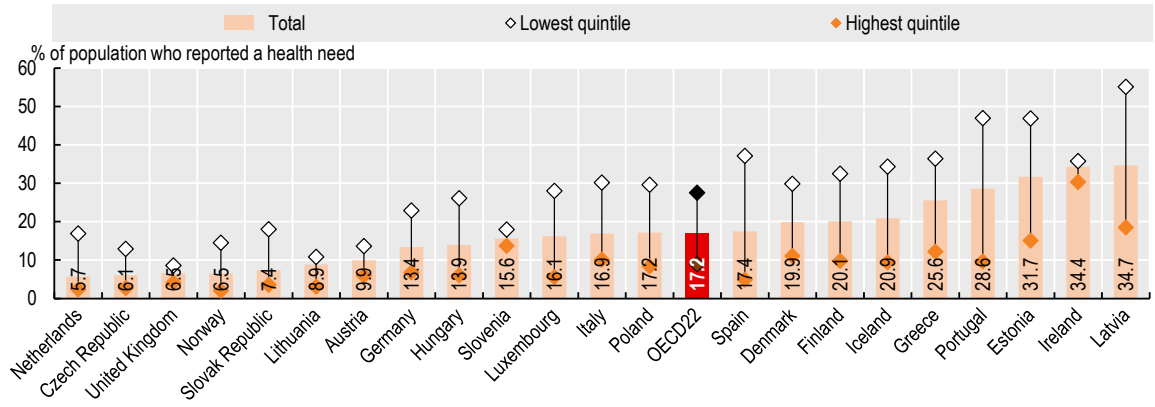
Figure 5.8. **Population forgoing or postponing care because of limited availability, by income, 2014**



Source: OECD estimates based on EHIS-2 and other national health survey data.

StatLink https://doi.org/10.1787/888934015752

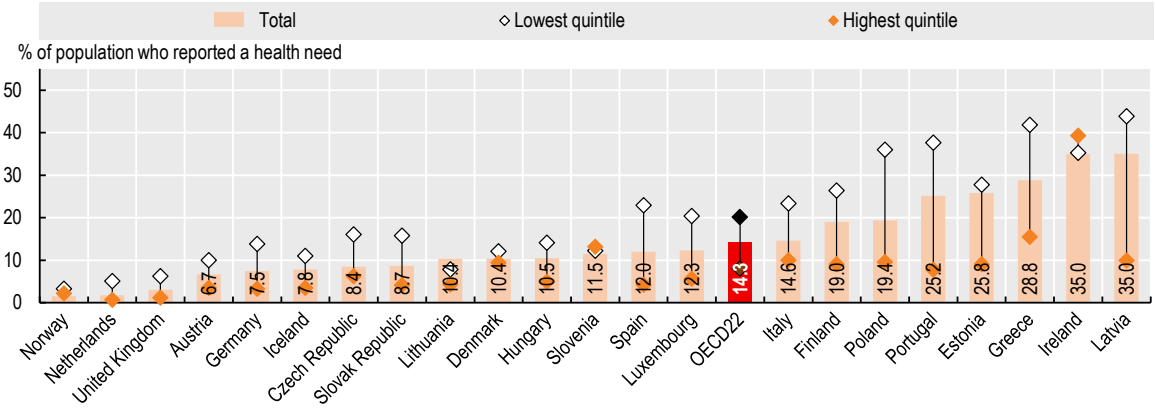
Figure 5.9. **Population forgoing care because of affordability, by income, 2014**



Source: OECD estimates based on EHIS-2.

StatLink https://doi.org/10.1787/888934015771

Figure 5.10. **Adults over 65 forgoing or postponing care because of affordability, by income, 2014**



Source: OECD estimates based on EHIS-2.

StatLink https://doi.org/10.1787/888934015790

Financial hardship and out-of-pocket expenditure

Where health systems fail to provide adequate financial protection, people may not have enough money to pay for health care or meet other basic needs. As a result, lack of financial protection can reduce access to health care, undermine health status, deepen poverty and exacerbate health and socio-economic inequalities. On average across OECD countries, just over a fifth of all spending on health care comes directly from patients through out-of-pocket (OOP) payments (see indicator "Financing of health care"). People experience financial hardship when the burden of such OOP payments is large in relation to their ability to pay. Poor households and those who have to pay for long-term treatment such as medicines for chronic illness are particularly vulnerable.

The share of household consumption spent on health care provides an aggregate assessment of the financial burden of OOP expenditure. Across OECD countries, about 3% of total household spending was on health care goods and services, ranging from around 2% in France, Luxembourg and Slovenia, to more than 5% in Korea and nearly 7% in Switzerland (Figure 5.11).

Health systems in OECD countries differ in the degree of coverage for different health goods and services (see indicator "Extent of health care coverage"). Household spending on pharmaceuticals and other medical goods was the main health care expense for people, followed by spending on outpatient care (Figure 5.12). These two components typically account for almost two-thirds of household spending on health care. Household spending on dental care and long-term health care can also be high, averaging 14% and 11% of OOP spending on health respectively. Inpatient care plays only a minor role (9%) in the composition of OOP spending.

The indicator most widely used to measure financial hardship associated with OOP payments for households is the incidence of catastrophic spending on health (Cylus et al., 2018[1]). This varies considerably across OECD countries, from fewer than 2% of households experiencing catastrophic health spending in France, Sweden, the United Kingdom, Ireland, the Czech Republic and Slovenia, to over 8% of households in Portugal, Poland, Greece, Hungary, Latvia and Lithuania (Figure 5.13). Across all countries, poorer households (i.e. those in the bottom consumption quintile) are most likely to experience catastrophic health spending, despite the fact that many countries have put in place policies to safeguard financial protection.

Countries with comparatively high levels of public spending on health and low levels of OOP payments typically have a lower incidence of catastrophic spending. However, policy choices are also important, particularly around coverage policy (WHO Regional Office for Europe, 2018[2]). Population entitlement to publicly financed health care is a prerequisite for financial protection, but not a guarantee of it. Countries with a low incidence of catastrophic spending on health are also more likely to exempt poor people and frequent users of care from co-payments; use low fixed co-payments instead of percentage co-payments, particularly for outpatient medicines; and cap the co-payments a household has to pay over a given time period (e.g. Austria, the Czech Republic, Ireland and the United Kingdom).

Definition and comparability

Out-of-pocket (OOP) 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 ideally include estimations of informal payments to health providers.

Catastrophic health spending is an indicator of financial protection used to monitor progress towards universal health coverage (UHC). It is defined as OOP payments that exceed a predefined percentage of the resources available to a household to pay for health care. Household resources available can be defined in different ways, leading to measurement differences. In the data presented here, these resources are defined as household consumption minus a standard amount representing basic spending on food, rent and utilities (water, electricity, gas and other fuels). The threshold used to define households with catastrophic spending is 40%. Microdata from national household budget surveys are used to calculate this indicator.

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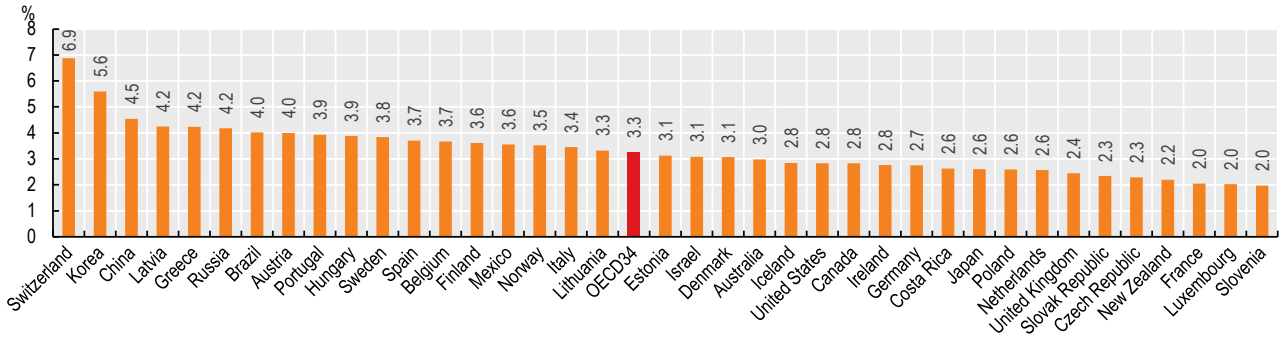
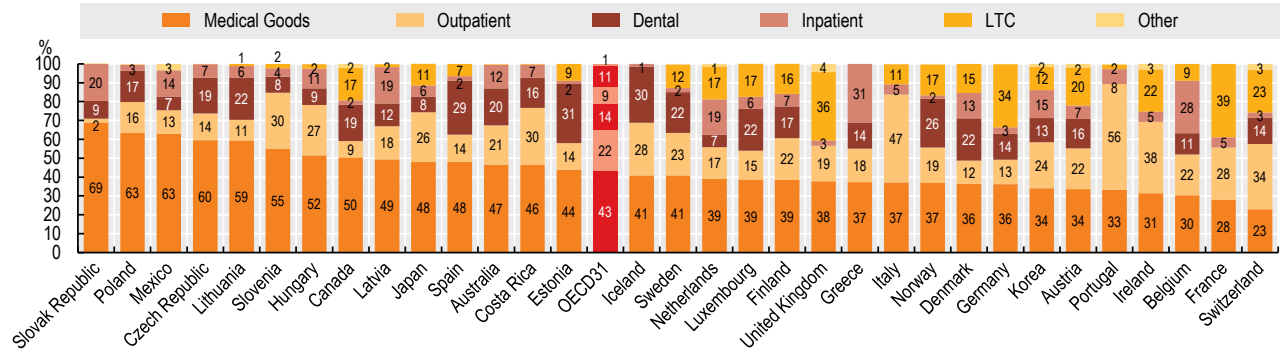
Figure 5.11. **Out-of-pocket spending as share of final household consumption, 2017 (or nearest year)**



Source: OECD Health Statistics 2019, OECD National Accounts Database.

StatLink https://doi.org/10.1787/888934015809

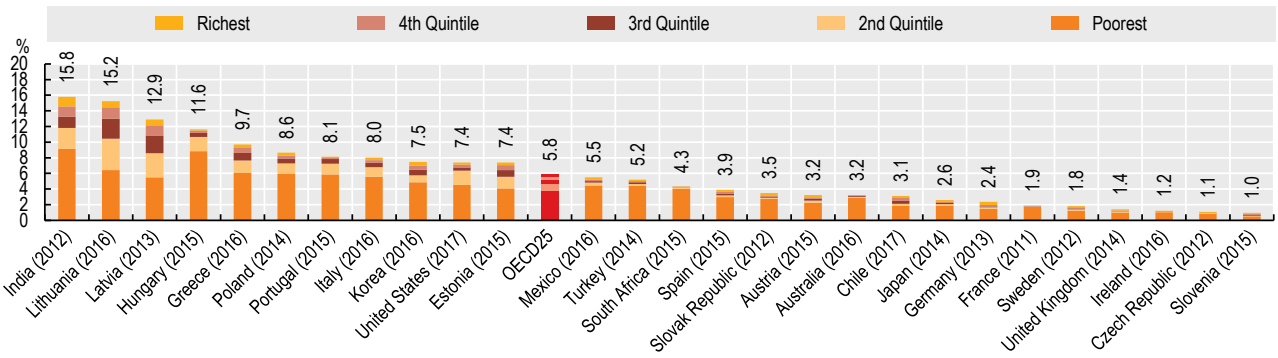
Figure 5.12. **Out-of-pocket spending on health, by type of services, 2017 (or nearest year)**



Note: The “Medical Goods” category includes pharmaceuticals and therapeutic appliances. The "Other" category includes preventive care, administrative services and services unknown.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015828

Figure 5.13. **Share of households with catastrophic health spending by consumption quintile, latest year available**



Source: WHO Regional Office for Europe, 2019.

StatLink https://doi.org/10.1787/888934015847

Geographic distribution of doctors

Access to medical care requires an adequate number and equitable distribution of doctors in all parts of the country. Concentration of doctors in one region and shortages in others can lead to inequities in access such as longer travel or waiting times. The uneven distribution of doctors and the difficulties in recruiting and retaining doctors in certain regions is an important policy issue in most OECD countries, especially in countries with remote and sparsely populated areas, and those with deprived rural and urban regions.

The overall number of doctors per capita varies widely across OECD countries from around two per 1 000 population in Turkey, Korea and Poland, to five or higher in Portugal, Austria and Greece (see indicator on "Doctors" in Chapter 8). Beyond these cross-country differences, the number of doctors per capita also varies widely across regions within the same country. 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. Differences in the density of doctors between urban regions and rural regions are highest in the Slovak Republic, Hungary and Portugal, notwithstanding differential definition of urban and rural regions across countries. The distribution of physicians between urban and rural regions was more equal in Japan and Korea, but there are generally fewer doctors in these two countries (Figure 5.14). Growing urbanisation will likely further widen existing geographic disparities in access to doctors.

Within predominantly urban areas, capital cities are typically capturing most of the physician supply (Figure 5.15). This is particularly evident in Austria, the Czech Republic, Greece, Portugal, the Slovak Republic and the United States. Differences between the capital region and the second region with highest density are largest in the United States and the Slovak Republic, with Washington D.C. and the Bratislava region having nearly twice as many physicians per capita as Massachusetts and East Slovakia (the second most dense), respectively. This usually results in higher dispersion between small regions for these countries, with the United States showing a nearly five-fold difference in physician density; and almost three-fold differences for the Slovak Republic and Greece. In contrast, Australia, Belgium and Korea show only around a 20% difference in physician densities between regions.

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 options for their children and professional opportunities for their spouse). A range of policy levers can be used to influence the choice of practice location of physicians. These include: 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 backgrounds 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 service delivery to improve the working conditions of doctors in underserved areas.

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. A number of countries have also introduced measures to encourage students from under-served regions to enrol in medical schools. The effectiveness and cost of different policies to promote a better distribution of doctors can vary significantly, with the impact depending 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, Schoenstein and Buchan, 2014[1]).

Definition and comparability

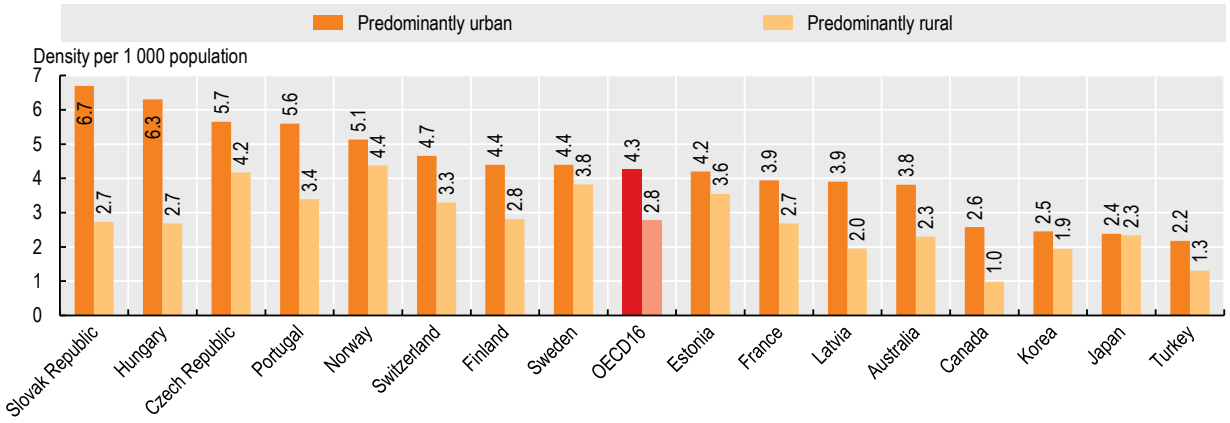
Regions are classified in two territorial levels. The higher level (Territorial Level 2) consists of large regions corresponding generally to national administrative regions. These broad regions may contain a mix of urban, intermediate and rural areas. The lower level is composed of smaller regions classified as predominantly urban, intermediate or rural regions, although there are variations across countries in the classification of these regions. Note that overseas territories are generally excluded from calculations. All data on geographic distributions come from the OECD Regional Database.

References

[2] OECD (2016), *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264239517-en*.

[1] Ono, T., M. Schoenstein and J. Buchan. (2014), "Geographic Imbalances in Doctor Supply and Policy Responses", *OECD Health Working Papers*, No. 69, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5jz5sq5ls1wl-en*.

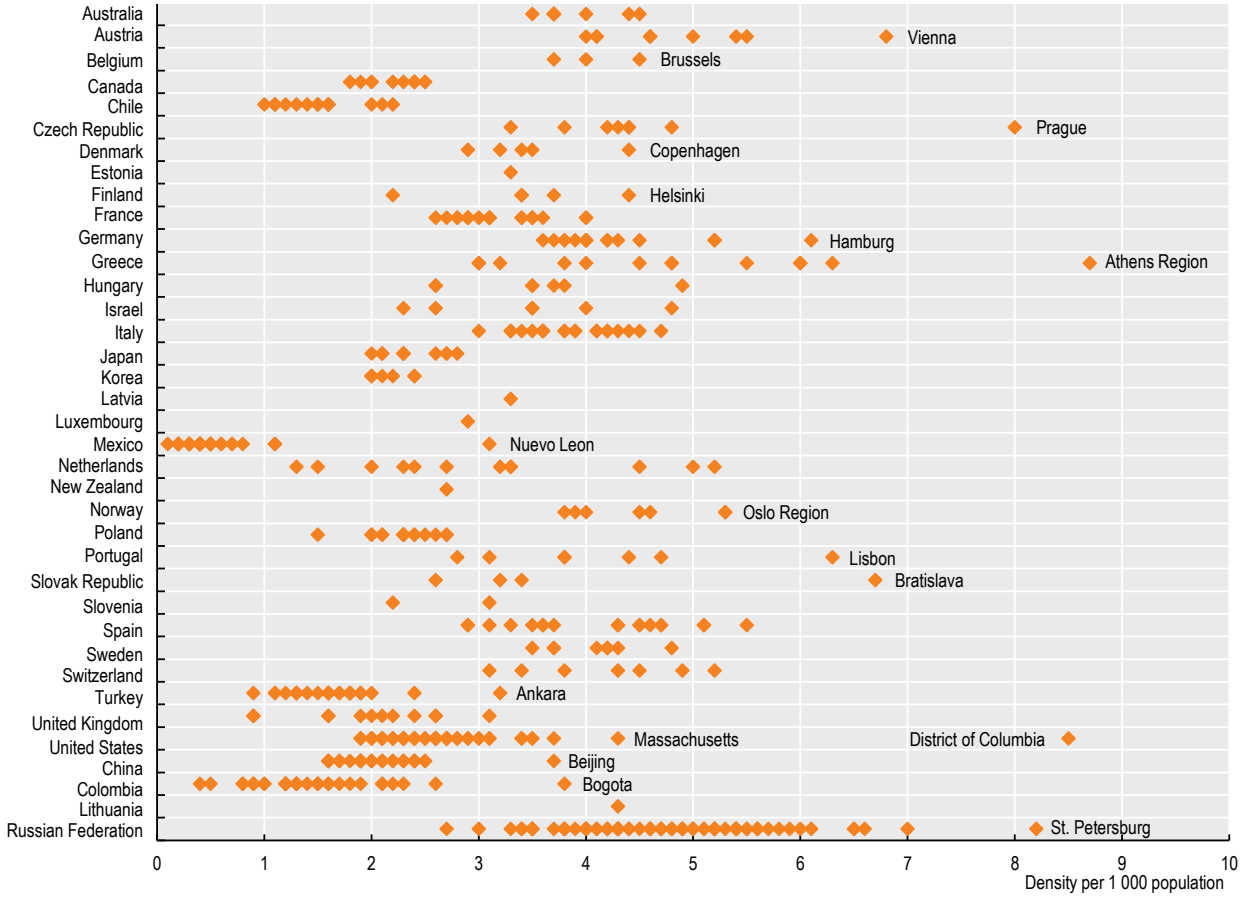
Figure 5.14. **Physician density, rural vs urban areas, 2016 (or nearest year)**



Source: OECD Regional Statistics Database 2019.

StatLink https://doi.org/10.1787/888934015866

Figure 5.15. **Physician density across localities, by level 2 regions, 2016 (or nearest year)**



Source: OECD Regional Statistics Database 2019.

StatLink https://doi.org/10.1787/888934015885

Waiting times for elective surgery

Long waiting times for elective (non-emergency) surgery cause dissatisfaction for patients, because they postpone the expected benefits of treatment, and pain and disability remain. Waiting times are the result of a complex interaction between the demand and supply of health services, with doctors playing a critical role on both sides. Demand for health services and elective surgeries is determined by the health status of the population, progress in medical technologies (including the simplification of many procedures, such as cataract surgery), patient preferences, and the burden of cost-sharing for patients. However, doctors play a crucial role in the decision to operate on a patient or not. On the supply side, the availability of surgeons, anaesthetists and other staff in surgical teams, as well as the supply of the required medical equipment, affect surgical activity rates.

The measure reported here refers to the waiting time from when a medical specialist adds a patient to the waiting list for the procedure, to the moment the patient receives treatment. Both mean and median waiting times are reported. Since a number of patients wait for very long times, the median is consistently and considerably lower than the mean, and might therefore represent a better measure for the central tendency of this indicator. The significant difference between the two measures, especially in countries such as Chile, Estonia, and Poland, highlights the presence of problematic groups of patients who wait significantly longer than others to receive treatment.

In 2017, the median waiting time for cataract surgery was less than 50 days in Italy, Hungary, Denmark, and Sweden (Figure 5.16). Countries with the largest waiting times include Estonia and Poland, with median waits of about seven months and over a year respectively. Over the past decade, waiting times increased in some countries, such as Canada and Portugal; in Spain waits decreased, while in New Zealand they remained relatively stable.

For hip replacement, the median waiting time was less than 50 days in Denmark and Italy (Figure 5.17). There were very long median waiting times of eight months or more in Estonia, Poland and Chile. Over the past five years, some countries, such as Finland, Hungary and Denmark, observed a decline in median waiting times for hip replacement, while Estonia saw a sharp increase.

Waiting times for knee replacement follows the patterns of hip replacement but with higher waiting times on average, with Estonia, Poland and Chile also having by far the longest waiting times (Figure 5.18). The median waiting time across the OECD sample is 114 days, more than 30 days above those of cataract surgery and 20 days above those of hip replacement. In Australia, median waiting times slightly increased over time to reach 200 days, while Portugal remained relatively unchanged since 2007. Hungary and Denmark saw reductions in the past decade.

Waiting time guarantees have become the most common policy tool to tackle long waiting times in several countries, but these guarantees are only effective if well enforced (Siciliani, Borowitz and Moran, 2013[1]).

Denmark has used maximum waiting times, together with patient choice of provider, to reduce waiting times since the late 2000s. The maximum waiting time guarantee was reduced from two months to one month in 2007, combined with free choice of provider. Under this scheme, if the hospital can foresee that the guarantee will not be fulfilled, the patient can choose another public or private hospital. If the treatment is outside of the region's own hospitals, the expenses are covered by the region where the patient lives.

In Hungary, waiting times for many elective surgeries have also been reduced in recent years. Specific objectives were set to reduce waiting times to under 60 days for minor surgery and under 180 days for major surgery, for all patients. To achieve this, the government adopted new laws and regulations on the management of waiting lists, developed an online waiting list system at the national level to monitor the situation in real-time, provided additional payment to reduce waiting times in selected areas or hospitals, and encouraged a reallocation of patients from providers with longer waiting times to those with shorter waiting times.

Definition and comparability

Two different measures of waiting times for elective procedures are commonly used: 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). Data come from administrative databases rather than surveys.

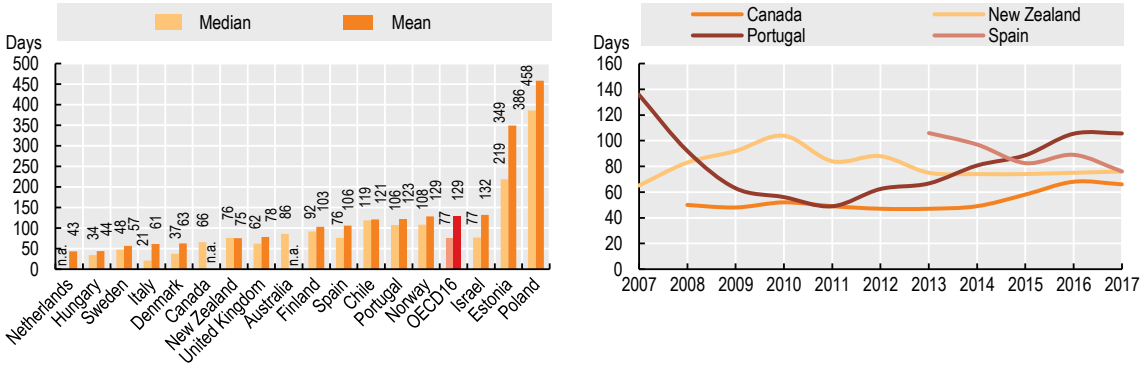
Waiting times are reported in terms of both the mean and the median. The median is the value that separates a distribution in two equal parts (i.e. half the patients have longer waiting times, the other half have shorter waiting times). Compared with the average (mean), the median minimises the influence of outliers, i.e. patients with very long waiting times. Waiting times are over-estimated in Norway because they start from the data when a doctor refers a patient for specialist assessment up to the treatment, whereas in other countries they start only when a specialist has assessed the patient and decided to add the person on the waiting list up to the treatment.

References

[2] National Research Council (US); Institute of Medicine (US) (2013), *U.S. Health in International Perspective*, National Academies Press, Washington, D.C., *http://dx.doi.org/10.17226/13497*.

[1] Siciliani, L., M. Borowitz and V. Moran (eds.) (2013), *Waiting Time Policies in the Health Sector: What Works?*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264179080-en*.

Figure 5.16. **Cataract surgery waiting times, averages and selected trends, 2017**



Source: OECD Health Statistics 2019.

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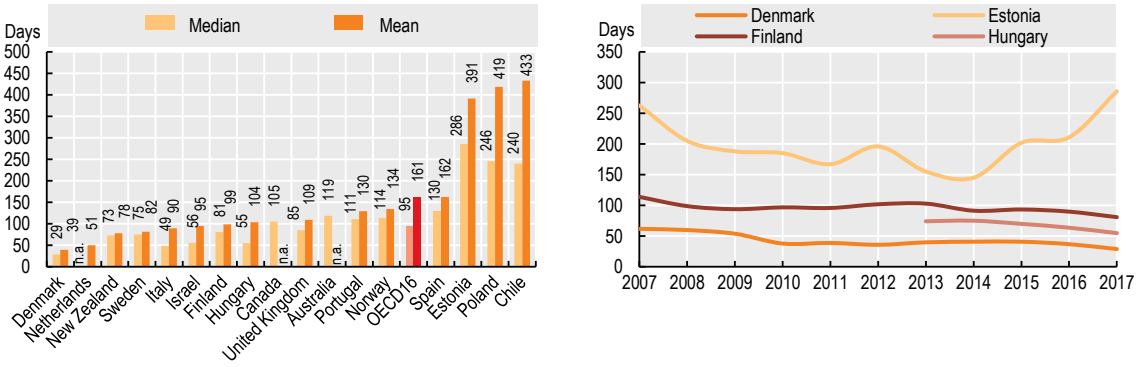
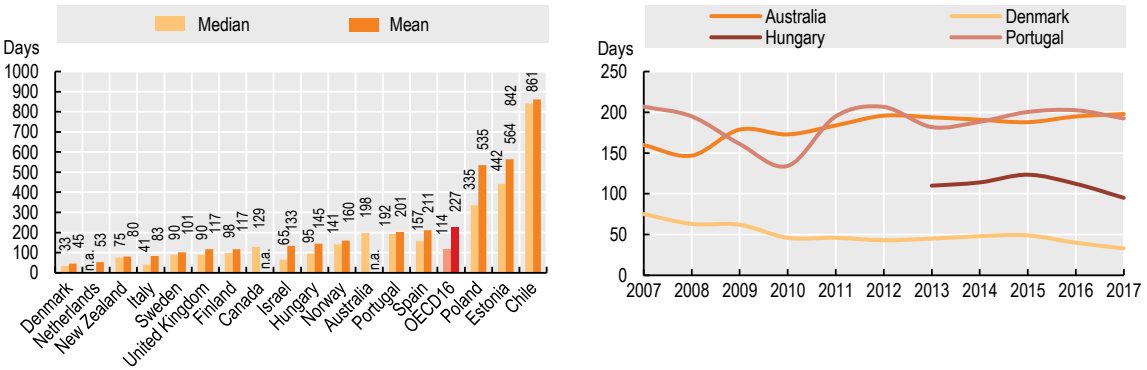
Figure 5.17. **Hip replacement waiting times, averages and selected trends, 2017**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015923

Figure 5.18. **Knee replacement waiting times, averages and selected trends, 2017**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015942

6. QUALITY AND OUTCOMES OF CARE

Safe primary care – prescribing

Safe acute care – surgical complications and health care-associated infections

Safe acute care – obstetric trauma

Avoidable hospital admissions

Diabetes care

Mortality following ischaemic stroke

Mortality following acute myocardial infarction (AMI)

Hip and knee surgery

Care for people with mental health disorders

Breast cancer outcomes

Screening and survival for colorectal cancer

Survival for other major cancers

Vaccinations

Patient experiences of ambulatory care

Safe primary care – prescribing

Prescribing can be used as an indicator of health care quality, supplementing consumption and expenditure information (see Chapter 10). The overuse, underuse or misuse of prescription medicines can cause significant hazards to health and lead to wasteful expenditure. This is, for example, the case for opioids and antibiotics.

Opioids are often used to treat acute pain and pain associated with cancer, and over the last decade have been increasingly used to treat chronic pain, despite the risk of dependence, dose increase, shortness of breath and death. Opioid use is now causing an alarming and rising epidemic of overdose deaths in some OECD countries, such as the United States and Canada (OECD, 2019[1]) (see indicator on "Opioids use" in Chapter 4).

Figure 6.1 indicates that, across OECD countries, the average volume of opioids prescribed in primary care in 2017 was more than 16 defined daily doses (DDDs) per 1 000 population per day. Iceland and Luxembourg report volumes more than twice the OECD average; Turkey and Korea report the lowest volumes. While these numbers measure prescriptions in primary care, they may reflect conditions on the supply side, as the mean availability of opioids is also low in Turkey (see indicator on "Opioids use" in Chapter 4). On average, more than 2% of the adult population across OECD countries were chronic users of opioids in 2017 (Figure 6.2). Korea and Italy report the lowest and Iceland reports the highest proportion by a large margin. The large variation can be explained in part by differences in clinical practice in pain management, as well as differences in regulation, legal frameworks for opioids, prescribing policies and treatment guidelines.

Antibiotics should be prescribed only where there is a need that is clearly supported by evidence, to reduce the risk of resistant strains of bacteria (OECD, 2018[2]). For example, quinolones and cephalosporins are considered second-line antibiotics in most prescribing guidelines, which should generally be used only when first-line antibiotics are ineffective. Total volume of antibiotics prescribed and second-line antibiotics as a proportion of total volume have been validated as markers of quality in the primary care setting (OECD, 2017[3]), while overall antibiotic consumption and antimicrobial resistance across OECD countries has been increasing (OECD, 2018[2]).

Figure 6.3 shows the volume of all antibiotics prescribed in primary care in 2017, including second-line antibiotics. Total volumes vary more than three-fold across countries, with the United Kingdom, Estonia and Sweden reporting the lowest volumes, and Italy and Greece reporting the highest. Volumes of second-line antibiotics vary more than 24-fold across countries. The Scandinavian countries and the United Kingdom report the lowest volumes of second-line antibiotics, whereas Greece and Korea report the highest. Variation is likely to be explained, on the supply side, by differences in the guidelines and incentives that govern primary care prescribers and, on the demand side, by differences in attitudes and expectations regarding optimal treatment of infectious illness.

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. For instance, the DDD for oral aspirin equals 3 grammes, 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. For more detail, see *http://www.whocc.no/atcddd*.

Data for Austria, Latvia, Estonia, Portugal, Spain and Sweden include data for primary care physicians only. Data for Canada, Finland, Italy, Korea and Norway include outpatient care. Data for the Netherlands include prescriptions by primary care doctors and medical specialists in outpatient clinics. Data for Denmark, Ireland and Slovenia include primary care, outpatient care and nursing homes. Data for Belgium and Turkey include primary care, nursing and residential facilities. Data for Iceland include data for primary care, outpatient care, specialists in private practice and nursing homes. Data relate to reimbursed prescriptions, with the exception of Iceland, Slovenia and the Netherlands (for benzodiazepines only), which include non-reimbursed medicines. Data for Denmark, Canada, Finland, Luxembourg, Portugal, the Netherlands and Sweden relate to medicines dispensed in community pharmacies. Data for Germany are based on prescription data of statutory health insurance for the outpatient area. Data for Australia are sourced from the Pharmaceutical Benefits Scheme dataset. Denominators comprise the population held in the national prescribing database, rather than the general population. Further information on sources and methods is at OECD.Stat. Other data in OECD Health Statistics on antibiotics may differ due to differences in data sources and coverage.

For opioids, "chronic users" is defined as the number of adults in the prescribing database with two or more prescriptions for at least 90 days.

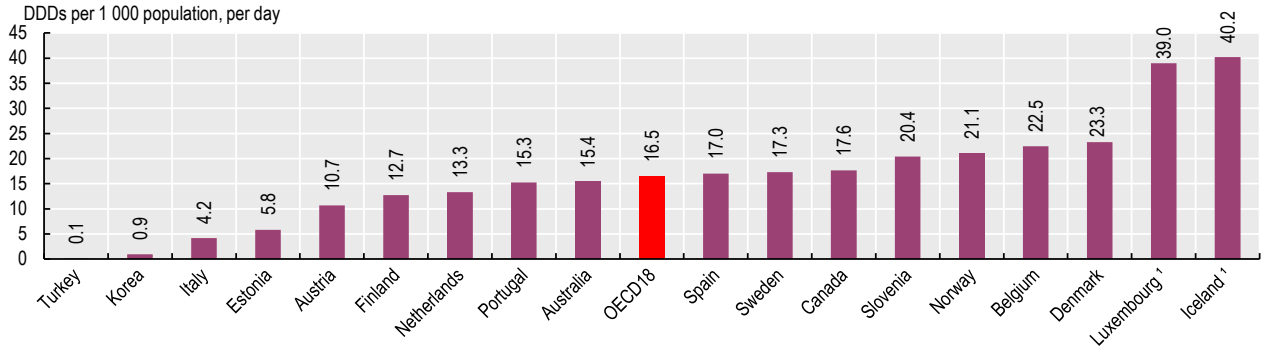
References

[1] OECD (2019), *Addressing Problematic Opioid Use in OECD Countries*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/a18286f0-en*.

[2] OECD (2018), *Stemming the Superbug Tide: Just A Few Dollars More*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264307599-en*.

[3] OECD (2017), *Tackling Wasteful Spending on Health*, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264266414-en*.

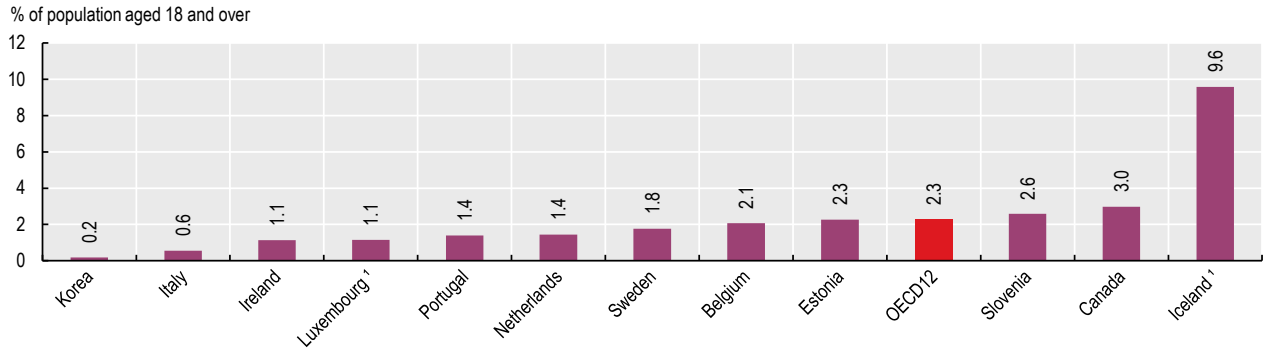
Figure 6.1. **Overall volume of opioids prescribed, 2017 (or nearest year)**



Note: Data exclude products used in the treatment of addiction. 1. Three-year average.
Source: OECD Health Statistics 2019 and Third Australian Atlas of Healthcare Variation 2018.

StatLink https://doi.org/10.1787/888934015961

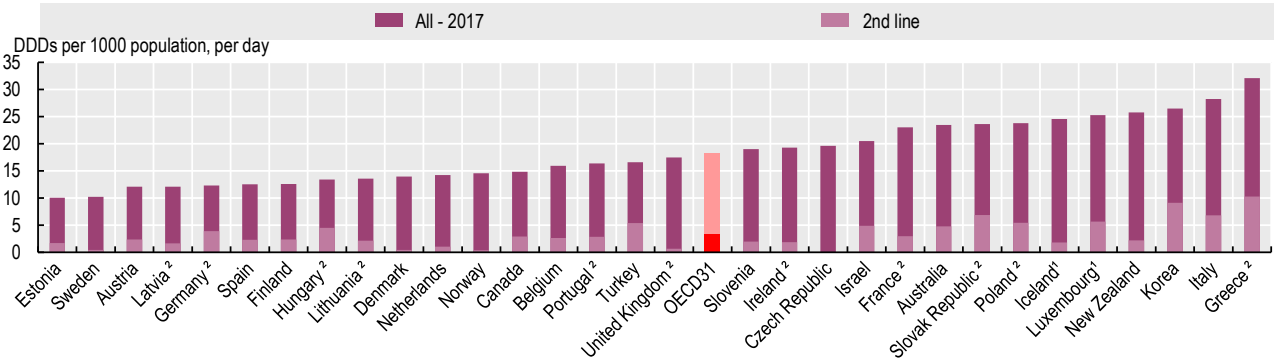
Figure 6.2. **Proportion of chronic opioid users in the adult population, 2017 (or nearest year)**



Note: Data exclude products used in the treatment of addiction. 1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015980

Figure 6.3. **Overall volume of antibiotics prescribed, 2017 (or nearest year)**



1. Three-year average. 2. Data from European Centre for Disease Prevention and Control as OECD Health Statistics data are not available.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015999

Safe acute care – surgical complications and health care-associated infections

Patient safety remains one of the most pressing health issues for public education and further policy action. Over 15% of hospital expenditure and activity in OECD countries can be attributed to treating patients who experience a safety event, many of which are preventable (Slawomirski, Auraaen and Klazinga, 2018[1]). The World Health Assembly recently endorsed the establishment of an annual World Patient Safety Day to further strengthen awareness and galvanise concerted action for safer care.

Patient safety problems may be categorised as "sentinel" or "never" events: events that should never or very rarely occur; and "adverse" events: events that cannot be fully avoided, but whose incidence could be considerably reduced.

Figure 6.4 illustrates rates for a never event – a foreign body left in during a procedure – using both linked and unlinked data (see the "Definition and comparability" box). 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 checklists, counting instruments, methodical wound exploration and effective communication among the surgical team.

Figure 6.5 illustrates rates for an adverse event – the percentage of hospital inpatients with health care-associated infections (HAIs) – in OECD countries, together with the proportion of bacteria causing these infections that are resistanct to antibiotics. HAIs are the single most deadly and costly adverse event, representing up to 6% of public hospital budgets (Slawomirski, Auraaen and Klazinga, 2018[1]). This impact is increased by antibiotic-resistant bacteria, which can make HAIs difficult or even impossible to treat.

On average, across OECD countries, just under 4.9% of hospital patients had an HAI in 2015-17. This proportion was 5.2% in 2011-12. The observed proportion of patients was lowest in Lithuania, Latvia and Germany (around 3%) and highest in Portugal, Greece and Iceland (more than 7%). Antibiotic resistance rates ranged from 0% in Iceland to nearly 70% in Latvia, although these rates should be interpreted with caution due to small sample sizes in some cases.

Figure 6.6 shows rates for two related adverse events – pulmonary embolism (PE) and deep vein thrombosis (DVT) after hip or knee replacement surgery – using both unlinked and linked data definitions (see the "Definition and comparability" box). PE and DVT cause unnecessary pain and in some cases death, but they can be prevented by anticoagulants and other measures. The large variations observed, including an over 25-fold variation in DVT rates, may be explained in part by differences in diagnostic practices across countries.

Definition and comparability

Indicators using unlinked data rely on information from a patient's admission to the hospital where surgery occurred to calculate rates. The number of discharges with International Classification of Diseases (ICD) codes for the relevant complication in any secondary diagnosis field is divided by the total number of discharges for patients aged 15 and older. The linked data approach expands beyond the surgical admission to include all subsequent related re-admissions to any hospital within 30 days after surgery.

Variations in definitions and medical recording practices between countries can affect calculation of rates and limit 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.

HAI data are based on results of point prevalence studies conducted by the Centers for Disease Control and Prevention (CDC) and the European Centre for Disease Prevention and Control (ECDC) between 2015 and 2017 (Magill et al., 2018[2]; Suetens et al., 2018[3]). HAI rates are unadjusted and may not reflect rates published elsewhere owing to differences in the infections included. See Suetens et al. (2018[3]) and Magill et al. (2018[2]) for more details regarding specific inclusions and exclusions. Country estimates may reflect different levels of variability based on sampling differences.The HAI rate is presented, along with the proportion of patients recruited from intensive care units (ICUs). ICU patients may be at greater risk of developing an HAI. Antibiotic resistance data are based on a composite antibiotic resistance indicator developed by the ECDC (Suetens et al., 2018[3]).

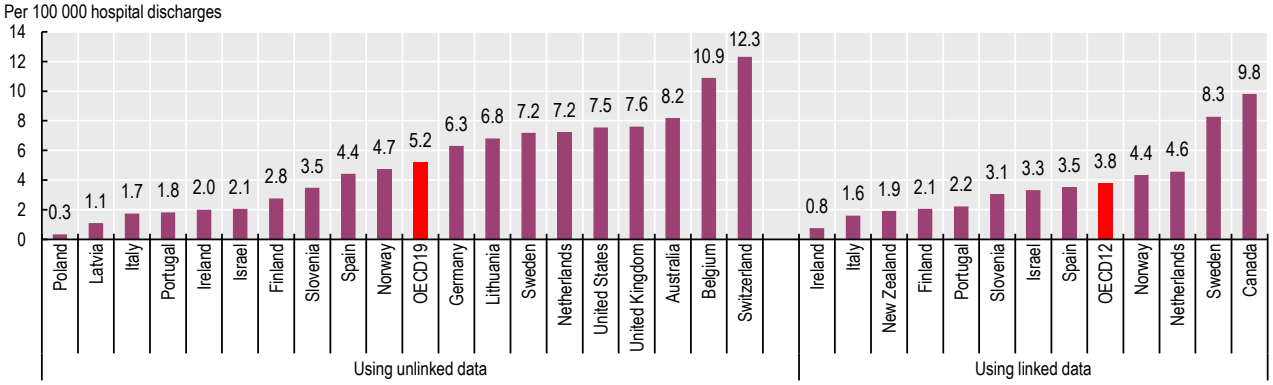
References

[2] Magill, SS. et al. (2018), "Changes in Prevalence of Health Care-Associated Infections in U.S. Hospitals." New England Journal of Medicine, 1;379(18):1732-1744. doi: *http://dx.doi.org/10.1056/NEJMoa1801550*.

[1] Slawomirski, L., A. Auraaen and N. Klazinga (2018), "The Economics of Patient Safety: Strengthening a value-based approach to reducing patient harm at national level," *OECD Health Working Papers*, No. 96, OECD Publishing, Paris, *https://doi.org/10.1787/5a9858cd-en*.

[3] Suetens, C. et al. (2018), "Prevalence of healthcare-associated infections, estimated incidence and composite antimicrobial resistance index in acute care hospitals and long-term care facilities: results from two European point prevalence surveys, 2016 to 2017", *Eurosurveillance*, *http://dx.doi.org/10.2807/1560-7917.es.2018.23.46.1800516*.

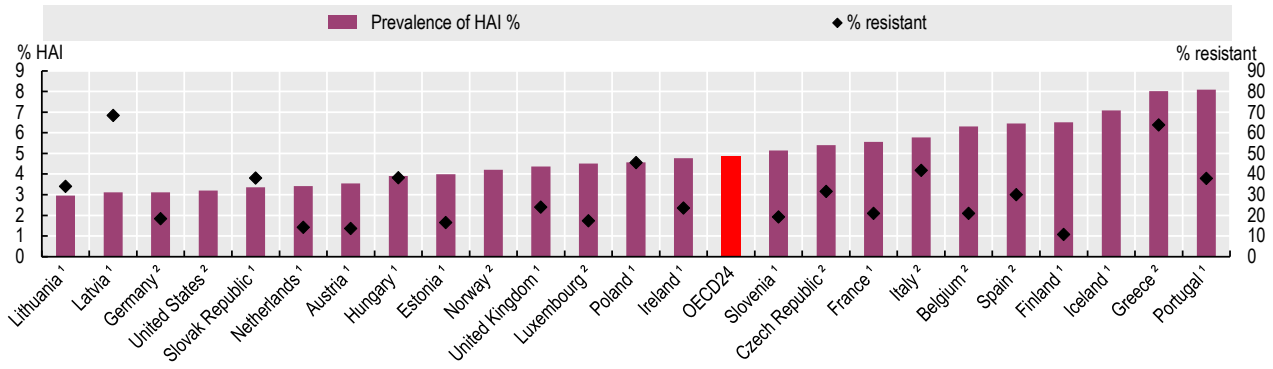
Figure 6.4. **Foreign body left in during procedure, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016018

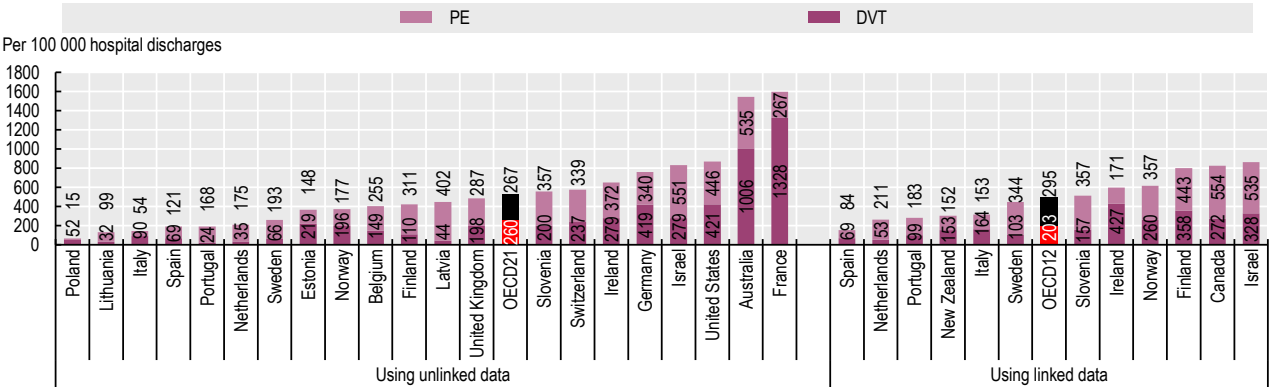
Figure 6.5. **Percentage of hospitalised patients with at least one health care-associated infection and proportion of bacteria isolated from these infections resistant to antibiotics, 2015-17**



Note: No resistance data available for Iceland, Norway and the United States.
1. Under 5% of patients from ICUs. 2. Over 5% of patients from ICUs.
Source: ECDC 2016-17 Point prevalence survey. CDC 2015 point prevalence study.

StatLink https://doi.org/10.1787/888934016037

Figure 6.6. **Adverse events in hip and knee surgeries: post-operative pulmonary embolism (PE) or deep vein thrombosis (DVT), 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016056

Safe acute care – obstetric trauma

A woman's 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. Possible complications include continued perineal pain and incontinence. It is not possible to prevent these types of tear in all cases, but they can be reduced by appropriate labour management and high-quality obstetric care.

The proportion of deliveries involving higher-degree lacerations is considered a useful indicator of the quality of obstetric care. Nevertheless, differences in the consistency with which obstetric units report these complications may make international comparison difficult.

Rates of obstetric trauma may be influenced by other care processes, including the overall national rate of caesarean births, assisted vaginal births (i.e. using forcepts or a vacuum) and episiotomy (i.e. surgical incision of the perineum performed to widen the vaginal opening for delivery of an infant); these remain issues of ongoing research. For example, while the World Health Organization (WHO) (2018[1]) does not recommend routine or liberal use of episiotomy for women undergoing spontaneous vaginal birth, selective use of episiotomy to decrease severe perineal lacerations during delivery remains a matter of debate.

Figure 6.7 shows rates of obstetric trauma *with* instrument (referring to deliveries using forceps or vacuum extraction) and Figure 6.8 shows rates of obstetric trauma after vaginal delivery *without* instrument. 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.

High variation in rates of obstetric trauma is evident across countries. Reported rates of obstetric trauma with instrument vary from below 2% in Poland, Israel, Italy, Slovenia and Lithuania to more than 10% in Denmark, Sweden, the United States and Canada. The rates of obstetric trauma after vaginal delivery without instrument vary from below 0.5 per 100 deliveries in Poland, Lithuania, Portugal, Latvia and Israel to over 2.5 per 100 deliveries in Denmark, the United Kingdom and Canada.

While the average rate of obstetric trauma with instrument (5.5 per 100 instrument-assisted vaginal deliveries) across OECD countries in 2017 was nearly four times the rate without instrument (1.4 per 100 vaginal deliveries without instrument assistance), there are indications of a relationship between the two indicators, with Israel, Lithuania, Portugal and Poland reporting among the lowest rates and Canada, Denmark and New Zealand reporting among the highest rates for both indicators.

Rates for both indicators reveal noticeable improvements in Denmark and Norway between 2012 and 2017, but no clear trend is evident in the overall rates of obstetric trauma over the five-year period: the OECD average remained relative static for vaginal deliveries both with and without instrument. In some countries, including Estonia, Italy and Slovenia, rates appear to have deteriorated.

In Canada there has been limited action to address the high rates of reported obstetric trauma. One initiative was the *Hospital Harm Improvement Resource: Obstetric Trauma* by the Canadian Patient Safety Institute to complement measurement of obstetric trauma by the Canadian Institute for Health Information. It links measurement and improvement by providing evidence-informed resources that support patient safety improvement efforts across the health system.

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 (ICD-10 codes O70.2-O70.3) in any diagnosis and procedure field.

Several differences in data reporting across countries may influence the calculated rates of obstetric patient safety indicators. These relate primarily to differences in coding practices and data sources. Some countries report obstetric trauma rates based on administrative hospital data and others based on obstetric register data.

Careful interpretation of obstetric trauma for instrument-assisted delivery rates over time is required, since the very low number of trauma cases in some countries is likely to give rise to significant year-on-year variation.

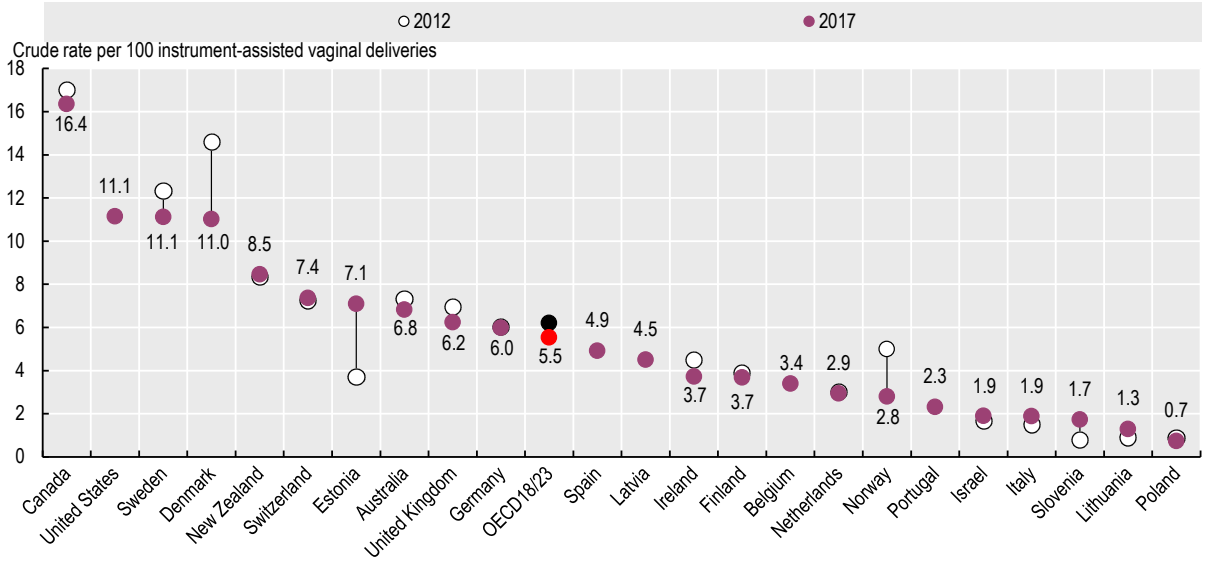
Data for 2012 are not available for Latvia and not presented for Belgium, Portugal, Spain and the United States due to a break in the series. Rates for Denmark, the Netherlands and Norway are based on registry data.

References

[2] Canadian Patient Safety Institute (2018), Hospital Harm Improvement Resource: Obstetric Trauma.

[1] WHO (2018), WHO recommendation on episiotomy policy.

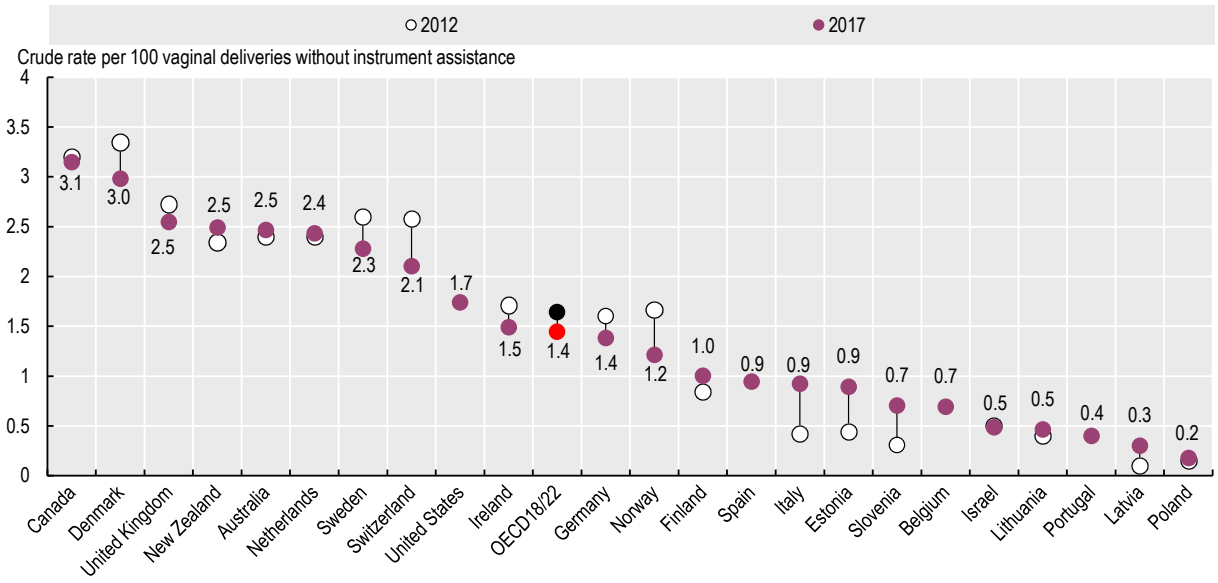
Figure 6.7. **Obstetric trauma, vaginal delivery with instrument, 2012 and 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016075

Figure 6.8. **Obstetric trauma, vaginal delivery without instrument, 2007 and 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016094

Avoidable hospital admissions

Primary care is expected to serve as the first point contact of people with health systems, and its functions include health promotion and disease prevention, managing new health complaints, treating the majority of uncomplicated cases, managing long-term conditions and referring patients to hospital-based services when appropriate. A key aim of primary care is to keep people well by providing a consistent point of care over the longer term, treating the most common conditions, tailoring and co-ordinating care for those with multiple health care needs and supporting the patient in self-education and self-management. Good primary care has, therefore, the potential to improve health, reduce socio-economic inequalities in health and make health care systems people-centred, while making better use of health care resources (OECD, forthcoming [1]).

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, while COPD is a progressive disease that mainly affects current or prior smokers. 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.

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 by primary care. A high-performing primary care system, where accessible and high-quality services are provided, can reduce acute deterioration in people living with asthma, COPD or CHF. This can avoid the need for hospital admissions to treat these conditions, which are used as a marker of quality and access in primary care.

Figure 6.9 shows hospital admission rates for asthma and COPD together, given the physiological relationship between the two conditions. Admission rates specifically for asthma vary 12-fold across OECD countries, with Mexico, Italy and Colombia reporting the lowest rates and Latvia, Turkey and Poland reporting rates over twice the OECD average. International admission rates specifically for COPD vary 15-fold across OECD countries, with Japan, Italy and Mexico reporting the lowest and Hungary, Turkey and Australia the highest rates. A lower 7-fold variation across countries is seen for the two respiratory conditions combined.

Hospital admission rates for CHF vary 13-fold, as shown in Figure 6.10. Costa Rica, Mexico and Colombia have the lowest rates, while Poland, Lithuania and the Slovak Republic report rates over twice the OECD average.

Figure 6.11 reveals that in Korea, Lithuania, Mexico and Sweden steady reductions in admission rates for asthma and COPD combined and for CHF have been achieved in recent years, whereas in the Slovak Republic, while rates of admission for asthma and COPD have fallen, rates of admission for CHF have increased. While observed improvements in some countries may represent advances in the quality of primary care, recent reviews undertaken by the OECD indicate that investment in primary care may still not be happening quickly enough (OECD, 2017[2]), potentially resulting in wasteful spending on hospital care (OECD, 2017[3]).

Definition and comparability

The indicators are defined as the number of hospital admissions with a primary diagnosis of asthma, COPD or CHF among people aged 15 years and over per 100 000 population. Rates are age-sex standardised to the 2010 OECD population aged 15 and over. Admissions resulting from a transfer from another hospital and where the patient dies during admission are excluded from the calculation, as these are considered unlikely to be avoidable.

Disease prevalence and availability of hospital care may explain some, but not all, variations in cross-country rates. Differences in coding practices among countries may also affect the comparability of data. For example, the exclusion of "transfers" cannot be fully complied with by some countries. Differences in data coverage of the national hospital sector across countries may also influence rates.

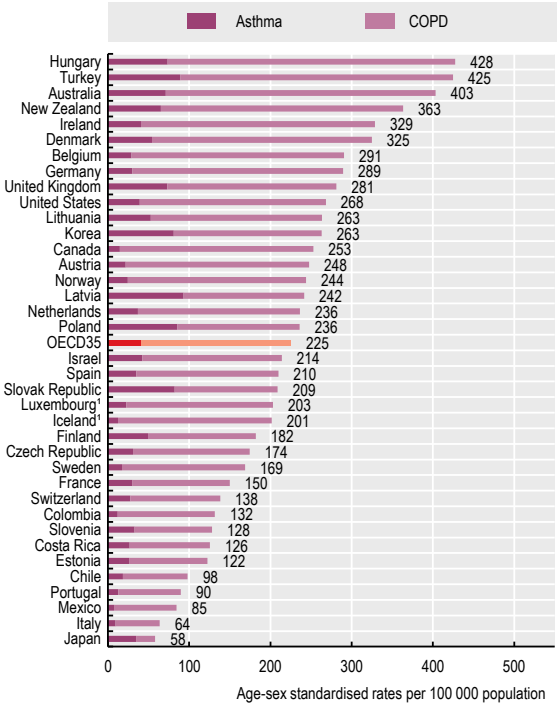
References

[1] OECD (forthcoming), *Doing Things Differently: Towards better primary care in the 21st century*, OECD Publishing, Paris.

[2] OECD (2017), *Caring for Quality in Health: Lessons Learnt from 15 Reviews of Health Care Quality*, OECD Reviews of Health Care Quality, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264267787-en*.

[3] OECD (2017), *Tackling Wasteful Spending on Health*, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264266414-en*.

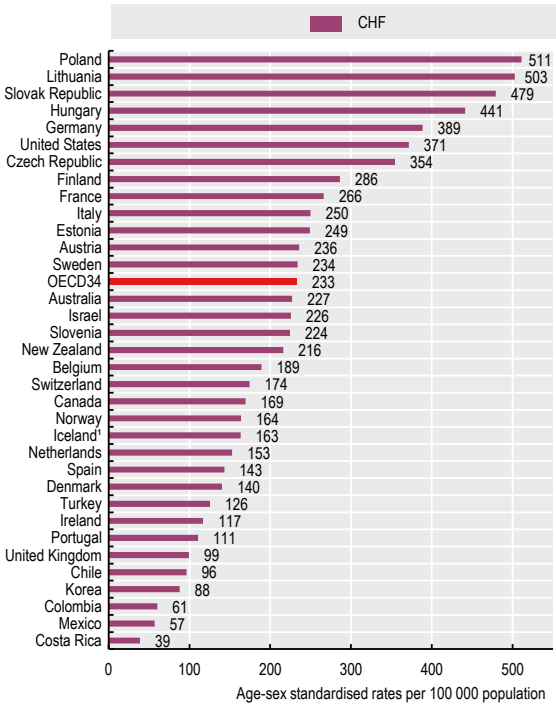
Figure 6.9. **Asthma and COPD hospital admission in adults, 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016113

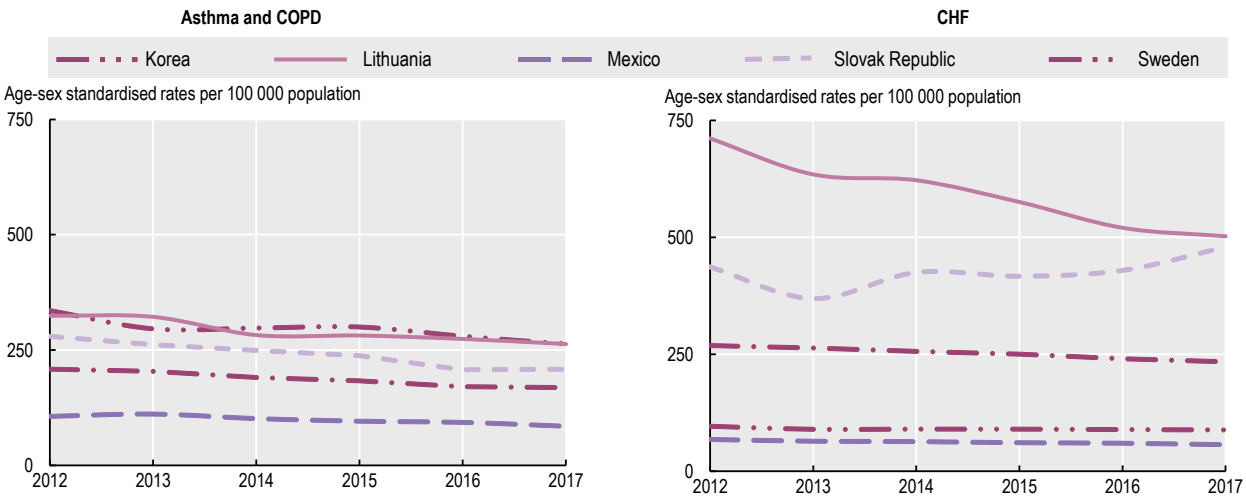
Figure 6.10. **Congestive Heart Failure (CHF) hospital admission in adults, 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016132

Figure 6.11. **Trends in hospital admission in adults, selected countries 2007-17 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016151

Diabetes care

Effective management of diabetes remains a public health priority, with over 425 million people living with the condition worldwide. Diabetes is a chronic disease that occurs when the body's ability to regulate excessive glucose levels in the blood is diminished. It is a leading cause of cardiovascular disease, blindness, kidney failure and lower limb amputation. Diabetes caused 4 million deaths in 2017, and it is projected that by 2045 over 629 million adults will have the condition (IDF, 2017[1]).

Ongoing management of diabetes usually involves a considerable amount of self-care; therefore, advice and education are central to the primary care of people with diabetes (OECD, 2019[2]). 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 (Wolters, Braspenning and Wensing, 2017[3]). Management of other key risk factors such as smoking, blood pressure and lipid levels is also important in reducing complications of diabetes.

Figure 6.12 shows avoidable hospital admissions for diabetes. While admissions have fallen in many countries over time, a more than 5-fold variation in the rates is still evident across countries. Iceland, Italy and Spain report the lowest rates, with Mexico and Korea reporting rates nearly twice the OECD average. Prevalence of diabetes may explain some of this variation. A positive relationship can be demonstrated between overall hospital admissions and admissions for diabetes, providing some indication that access to hospital care can also play a role in explaining international variation (OECD, 2015[4]).

In diabetic individuals with hypertension, angiotensin-converting enzyme inhibitors (ACE-Is) or angiotensin receptor blockers (ARBs) are recommended in most national guidelines as first-line medications to reduce blood pressure. Figure 6.13 reveals broad consistency in the proportion of diabetic patients on recommended antihypertensive medications: only Finland, Belgium and Korea have rates lower than 80%.

Hospital admissions for major lower extremity amputation reflect the long-term quality of diabetes care. Figure 6.14 shows the rates of amputations among adults with diabetes. The international variation is over 20-fold, with Iceland, Italy, Korea and the United Kingdom reporting rates lower than 3 per 100 000 general population and Costa Rica, Israel, Mexico and Austria reporting rates above 13 per 100 000.

The relationship between the nature, frequency and duration of primary care for diabetes and the rate of admissions to hospital for related complications is complex and still not well understood. In its ongoing attempts to contribute to reductions in knowledge gaps, the OECD is working to establish an international survey of patients with chronic conditions, including diabetes, to capture their self-reported health outcomes and better understand their primary care context. This survey is central to the Patient-Reported Indicators Surveys (PaRIS) initiative (*https://www.oecd.org/health/paris.htm*).

Definition and comparability

Diabetes avoidable admission is based on the sum of three indicators: admissions for short-term and long-term complications and for uncontrolled diabetes without complications. The indicator 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 denominator of people with diabetes who have recommended antihypertensive medication prescriptions is based on people with diabetes (i.e. who are long-term users of glucose-regulating medication) who also have one or more prescriptions per year from a range of medications often used in the management of hypertension. The numberator is the number of these people who have one or more prescriptions of an angiotensin converting enzyme inhibitor (ACE-I) or angiotensin receptor blocker (ARB).

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. Rates for these indicators have been directly age-standardised to the 2010 OECD population.

Differences in data definition, coding practices and indicator calculation methods between countries may affect comparability of data. Differences in data coverage of the national hospital sector across countries may also influence indicator rates.

In all instances, national data are reported. Variations in the coverage and national representativeness of the indicators for countries are documented in the sources and methods information in OECD.Stat.

References

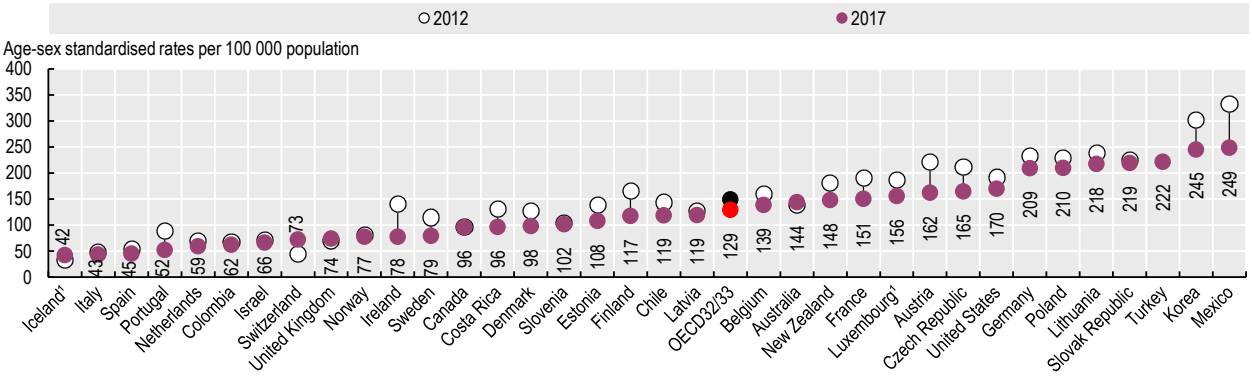
[1] IDF (2017), *IDF Diabetes Atlas Eighth Edition 2017*, International Diabetes Federation, *http://www.diabetesatlas.org*.

[2] OECD (2019), "Realising the Full Potential of Primary Health Care", OECD, Paris, *http://www.oecd.org/health/health-systems/OECD-Policy-Brief-Primary-Health-Care-May-2019.pdf*.

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

[3] Wolters, R., J. Braspenning and M. Wensing (2017), "Impact of primary care on hospital admission rates for diabetes patients: A systematic review", *Diabetes Research and Clinical Practice*, Vol. 129, pp. 182-196, *http://dx.doi.org/10.1016/j.diabres.2017.05.001*.

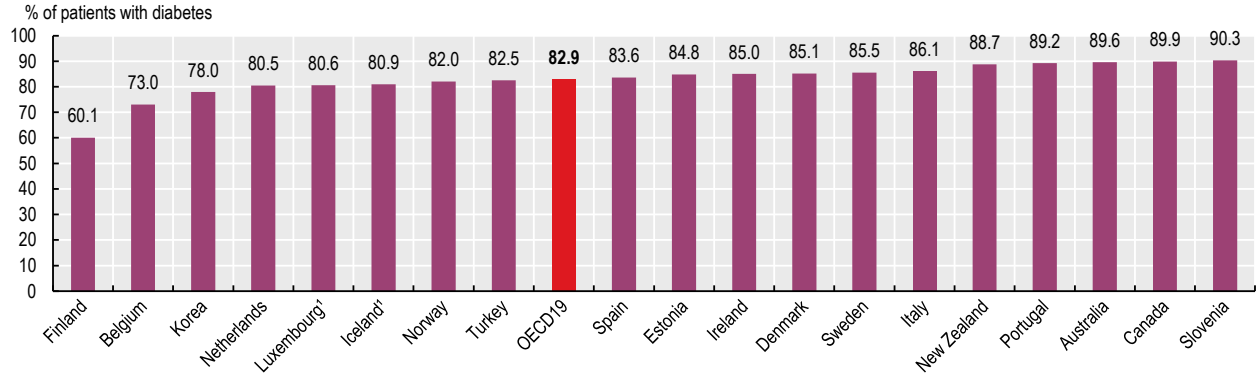
Figure 6.12. **Diabetes hospital admission in adults, 2012 and 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016170

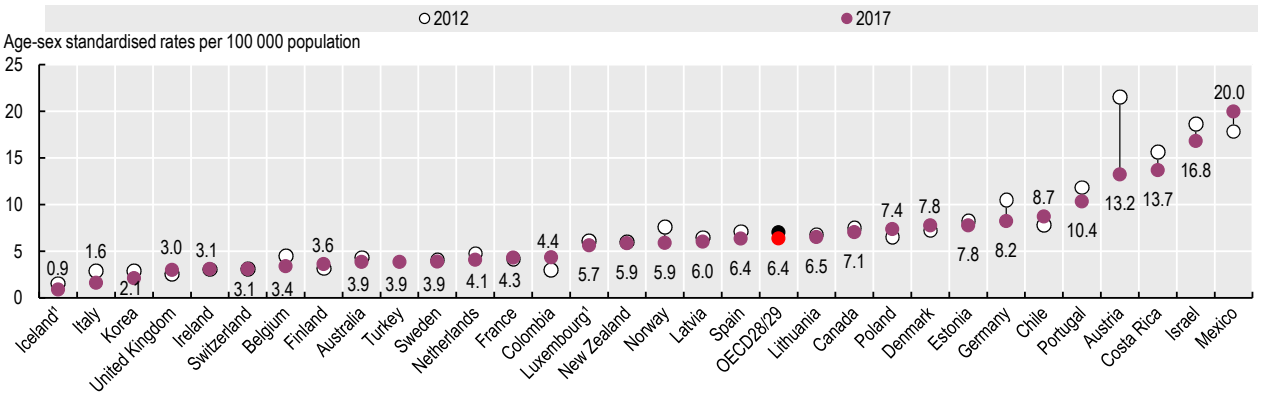
Figure 6.13. **People with diabetes prescribed recommended antihypertensive medication in the past year, 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016189

Figure 6.14. **Major lower extremity amputation in adults with diabetes, 2012 and 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016208

Mortality following ischaemic stroke

Stroke is the second leading global cause of death behind heart disease and accounted for over 10% of total deaths worldwide in 2013 (American Heart Association, 2017[1]). A stroke occurs when the blood supply to a part of the brain is interrupted, leading to necrosis (cell death) of the affected part. Of the two types of stroke, about 85% are ischaemic (caused by clotting) and 15% are haemorrhagic (caused by bleeding).

Figure 6.15 shows the case-fatality rates within 30 days of hospital admission for ischaemic stroke where the death occurred in the same hospital as the initial admission (unlinked data). Figure 6.16 shows the case-fatality rate where deaths are recorded regardless of where they occurred, including in another hospital or outside the hospital where the stroke was first recorded (linked data). The indicator using linked data is more robust because it captures fatalities more comprehensively than the same-hospital indicator, but it requires a unique patient identifier and linked data, which are not available in all countries.

Across OECD countries, 7.7% of patients in 2017 died within 30 days of hospital admission for ischaemic stroke using unlinked data (Figure 6.15). The case-fatality rates were highest in Slovenia, Poland, Lithuania and Latvia, all with mortality rates over 12%. Rates were less than 4% in Norway, Korea, Japan and Costa Rica. Low rates in Japan are due in part to recent efforts dedicated to improving the treatment of stroke patients in hospitals, through systematic blood pressure monitoring, major material investment in hospitals and establishment of stroke units (OECD, 2015[2]).

Across the 23 countries that reported linked data rates, 12.3% of patients died within 30 days of being admitted to hospital for stroke (Figure 6.16). This figure is higher than the same-hospital indicator because it only counts each patient once and captures all deaths.

Treatment for ischaemic stroke has advanced dramatically over the last decade, with systems and processes now in place in many OECD countries to identify suspected ischaemic stroke patients as early as possible and to deliver acute reperfusion therapy quickly. Between 2007 and 2017, case-fatality rates for ischaemic stroke decreased substantially across OECD countries: from 10.1% to 7.7% for unlinked data rates and from 14.6% to 12.6% for linked data rates.

National measures of ischaemic stroke are affected by within-country variations in performance at the hospital level. Reducing this variation is key to providing equitable care and reducing overall mortality rates. Figure 6.17 presents the dispersion of ischaemic stroke 30-day case-fatality rates across hospitals within countries, using both unlinked and linked data.

Reducing this variation requires high-quality stroke care for all, including timely transportation of patients, evidence-based medical interventions and access to high-quality specialised facilities such as stroke units (OECD, 2015[3]). Timely care is particularly important, and advances in technology are leading to new models of care to deliver reperfusion therapy in an even more speedy and efficient manner, whether through pre-hospital triage via telephone or administering the therapy in the ambulance (Chang and Prabhakaran, 2017[4]).

Definition and comparability

National case-fatality rates are defined in indicator "Mortality following acute myocardial infarction".

Hospital-level stroke mortality rates use a different methodology from national rates. Hospital rates are adjusted for age, sex, co-morbidity, stroke severity and previous stroke (linked data only). The reference population for hospital rates is constructed from data from participating countries. The hospital-level ischaemic stroke definition also differs from the national indicator, using only ICD-10 code I63 (cerebral infarction).

Figure 6.17 is a turnip plot that graphically represents the relative dispersion of rates. A limitation of this type of representation is the inability to detect statistically significant variations. Countries are ordered according to ascending level of dispersion as measured by the interquartile range (between the 25th and 75th percentile) of rates. Hospitals with fewer than 50 ischaemic stroke admissions were excluded from both figures to improve data reliability.

References

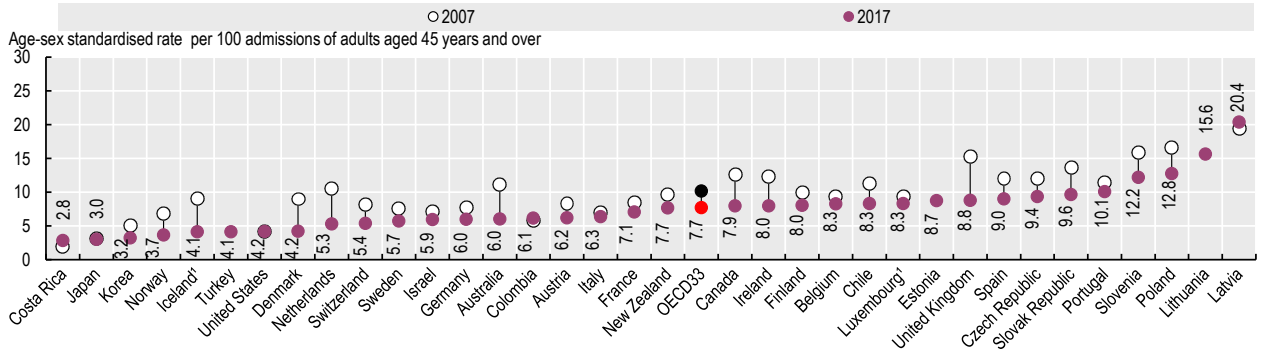
[1] American Heart Association (2017), *Heart Disease and Stroke Statistics 2017 at-a-Glance*.

[4] Chang, P. and S. Prabhakaran (2017), "Recent advances in the management of acute ischemic stroke", *F1000Research*, *http://dx.doi.org/10.12688/f1000research.9191.1*.

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

[2] OECD (2015), *OECD Reviews of Health Care Quality: Japan 2015: Raising Standards*, OECD Reviews of Health Care Quality, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264225817-en*.

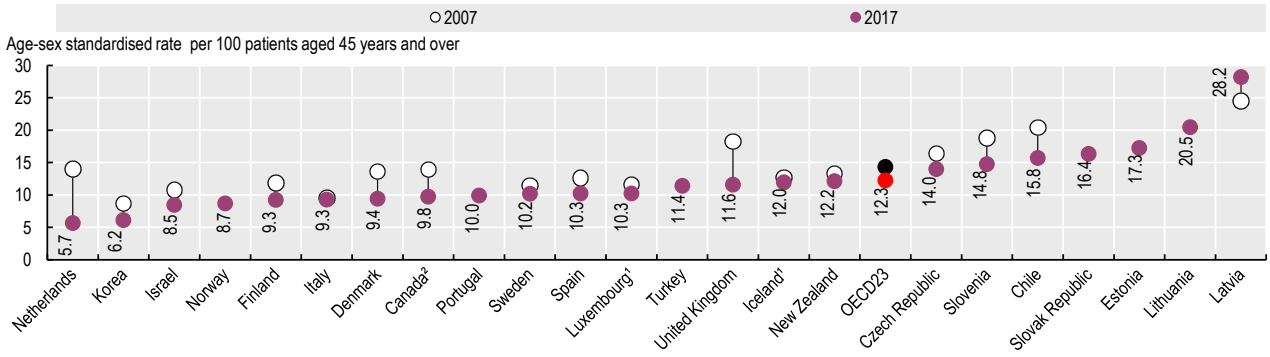
Figure 6.15. **Thirty-day mortality after admission to hospital for ischaemic stroke based on unlinked data, 2007 and 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016227

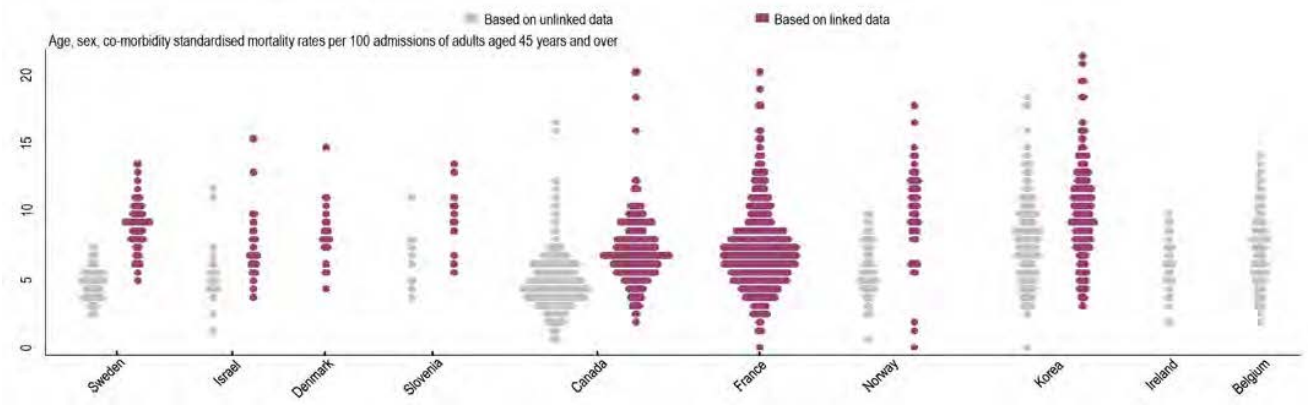
Figure 6.16. **Thirty-day mortality after admission to hospital for ischaemic stroke based on linked data, 2007 and 2017 (or nearest year)**



1. Three-year average. 2. Results for Canada do not include deaths outside acute care hospitals.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016246

Figure 6.17. **Variations across hospitals in 30-day mortality after admission for ischaemic stroke using linked and unlinked data, 2015-17**



Note: The width of each line in the figure represents the number of hospitals (frequency) with the corresponding rate.
Source: OECD Hospital Performance Data Collection 2019.

StatLink https://doi.org/10.1787/888934016265

Mortality following acute myocardial infarction (AMI)

Mortality due to coronary heart disease has declined substantially since the 1970s (see indicator "Mortality from circulatory diseases" in Chapter 3). Important advances in both prevention policies, such as for smoking (see indicator "Smoking among adults" in Chapter 4), and treatment of cardiovascular diseases have contributed to these declines (OECD, 2015[1]). A good indicator of acute care quality is the 30-day AMI case-fatality rate. The measure reflects the processes of care, including timely transport of patients and effective medical interventions.

Figure 6.18 shows the case-fatality rates within 30 days of admission for AMI where the death occurs in the same hospital as the initial AMI admission. This method of calculating the indicator is influenced by not only the quality of care provided in hospitals but also differences in hospital transfers and average length of stay. The lowest rates are found in Iceland, Denmark, Norway, the Netherlands, Australia and Sweden (all 4% or less). The highest rates are in Latvia and Mexico, suggesting that AMI patients do not always receive recommended care in these countries. In Mexico, the absence of a co-ordinated system of care between primary care and hospitals may contribute to delays in reperfusion and low rates of angioplasty (Martínez-Sánchez et al., 2017[2]).

Figure 6.19 shows 30-day case-fatality rates where fatalities are recorded regardless of where they occur (including after transfer to another hospital or after discharge). 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 are not available in all countries. The AMI case-fatality rate in 2017 ranged from 4.0% in the Netherlands to 16.5% in Latvia.

Case-fatality rates for AMI decreased substantially between 2007 and 2017 (Figure 6.18 and Figure 6.19). Across OECD countries, case fatalities fell from 9.5% to 6.9% when considering same-hospital deaths and from 12.5% to 9.1% when considering deaths in and out of hospital.

Variations in AMI 30-day case-fatality rates at the national level are influenced by the dispersion of rates across hospitals within countries, as represented in Figure 6.20. The interquartile range of rates within countries varies markedly. The differences between the upper and lower rates are 1.9 deaths per 100 admissions for Sweden and 4.1 deaths per 100 admissions for Korea (based on linked data).

Multiple factors contribute to variations in outcomes of care, including hospital structure, processes of care and organisational culture. Recent research points to higher total numbers of hospital patients as being significantly related to higher performance; this may support national movements towards concentration of care services (Lalloué et al., 2019[3]).

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 unlinked data only consider deaths occurring in the same hospital as the initial admission. Rates based on linked data consider deaths that occurred anywhere including in or outside hospital. While the linked data-based method is considered more robust, it requires a unique patient identifier to link the data across the relevant datasets, which is not available in all countries.

National rates are age-sex standardised to the 2010 OECD population aged 45 and over admitted to hospital for AMI (ICD-10 codes I21-I22) and ischaemic stroke (ICD-10 codes I63-I64).

Hospital-level AMI mortality rates use a different methodology from national rates. Hospital rates are adjusted for age, sex, co-morbidity and previous AMI (linked data only). The reference population for hospital rates is constructed from data from participating countries (Padget, forthcoming[4]).

Figure 6.20 is a turnip plot that graphically represents the relative dispersion of rates. A limitation of this type of representation is the inability to detect statistically significant variations. Countries are ordered according to ascending level of dispersion as measured by the interquartile range (between the 25th and 75th percentile) of rates. Hospitals with fewer than 50 AMI admissions were excluded from both figures to improve data reliability.

References

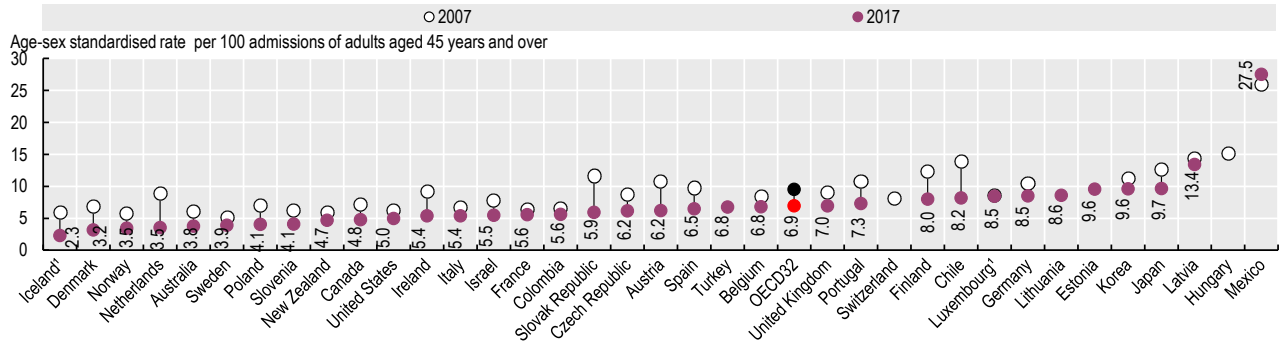
[4] Padget, M. (forthcoming), "OECD Hospital Performance Project: Methodological Development of International Measurement of Acute Myocardial Infraction 30-Day Mortality Rates at the Hospital Level", *OECD Health Working Papers*, OECD Publishing, Paris.

[3] Lalloué, B. et al. (2019), "Does size matter? The impact of caseload and expertise concentration on AMI 30-day mortality-A comparison across 10 OECD countries.", *Health policy (Amsterdam, Netherlands)*, Vol. 123/5, pp. 441-448, *http://dx.doi.org/10.1016/j.healthpol.2019.03.007*.

[2] Martínez-Sánchez, C. et al. (2017), "Reperfusion therapy of myocardial infarction in Mexico: A challenge for modern cardiology.", *Archivos de cardiologia de Mexico*, Vol. 87/2, pp. 144-150, *http://dx.doi.org/10.1016/j.acmx.2016.12.007*.

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

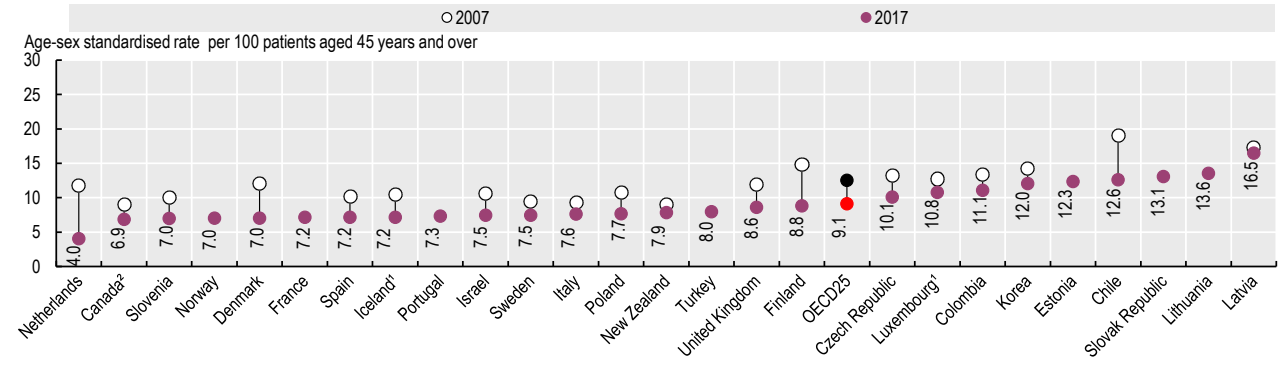
Figure 6.18. **Thirty-day mortality after admission to hospital for AMI based on unlinked data, 2007 and 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016284

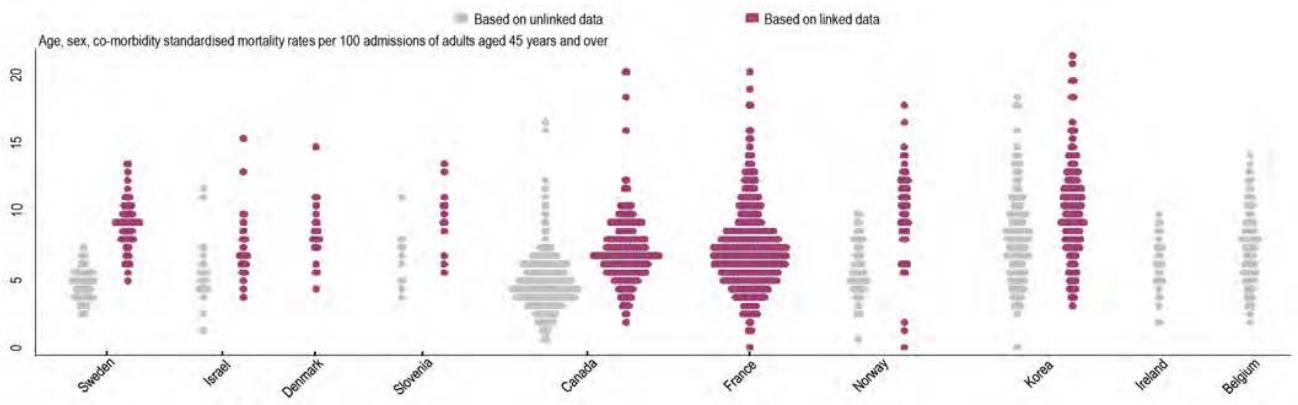
Figure 6.19. **Thirty-day mortality after admission to hospital for AMI based on linked data, 2007 and 2017 (or nearest year)**



1. Three-year average. 2. Results for Canada do not include deaths outside acute care hospitals.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016303

Figure 6.20. **Variations across hospitals in 30-day mortality after admission for AMI using linked and unlinked data, 2015-17**



Note: The width of each line in the figure represents the number of hospitals (frequency) with the corresponding rate.
Source: OECD Hospital Performance Data Collection 2019.

StatLink https://doi.org/10.1787/888934016322

Hip and knee surgery

Hip and knee replacement surgeries can be effective treatments for patients with chronic conditions such as osteoarthritis (OA). Surgeries to repair hip fractures are also common and effective. Ageing and a loss of skeletal strength from osteoporosis are the main risk factors associated with a hip fracture, typically sustained during a fall. In most instances, surgical intervention is required to repair or replace the fractured hip joint.

Treatment of patients with hip and knee OA aims to reduce the patient's joint pain and improve their function, mobility and quality of life (QoL). Surgery is generally recommended if symptoms substantially affecting QoL persist after exhausting non-surgical treatment (NICE, 2014[1]). Age-standardised hip and knee replacement rates have risen over the past decade, and vary up to five-fold within and between countries (OECD, 2014[2]).

Figure 6.21 shows the crude mean scores submitted by patients before and at 6 or 12 months after elective hip replacement surgery for OA in a set of national or sub-national joint replacement programmes using the Oxford Hip Score and HOOS-PS, which are validated patient-reported outcome measures (PROMs) that have been developed specifically for hip and knee pain. In all programmes, the average patient reported a higher score following surgery, suggesting a positive outcome on average.

Figure 6.22 shows the crude mean scores submitted by patients before and 6 or 12 months after elective knee replacement surgery for OA in national and sub-national programmes using the Oxford Knee Score and KOOS-PS instruments. On average, knee replacement patients also reported improvement after surgery in all programmes. The amount of improvement for knee replacement was, on average, more modest than that reported by hip replacement patients. However, patients recovering from knee arthroplasty may take longer to recover. Further results and analysis of these measures are provided in Chapter 2.

While a hip replacement for OA is an elective procedure, hip fracture repair is usually an emergency procedure. Evidence suggests that early surgical intervention improves patient outcomes and minimises the risk of complication. There is general agreement that surgery should occur within two days (48 hours) of hospital admission (National Clinical Guideline Centre, 2011[3]).

Time-to-surgery (TTS) is considered a clinically meaningful process indicator of the quality of acute care for patients with hip fracture. However, TTS is influenced by many factors, including hospitals' surgical theatre capacity, flow and access, and targeted policy interventions, including public reporting and monitoring of performance (Siciliani, Borowitz and Moran, 2013[4]).

In 2017, on average across OECD countries, over 80% of patients admitted for hip fracture underwent surgery within two days (Figure 6.23) This represents a modest increase of 2.7 percentage points (from 78.2% to 80.9%) since 2012.

The biggest improvement was observed in Israel (from 68% to 89%). Targeted policies that effectively incentivise timely surgery following hip fracture admission could partly explain this result. Iceland, the Czech Republic, Portugal and Latvia reported a decline in the proportion over this period, suggesting a need for policy interventions.

Definition and comparability

The PROM results are based on data from adult patients undergoing elective hip or knee replacement with a principal diagnosis of OA, who completed an Oxford Hip/Knee Score and/or H/KOOS questionnaire pre- and post-operatively (OECD, forthcoming[5]). On both scales, a higher score denotes better outcomes. Data collection at 6 months versus 12 months influences the results. The size of participating programmes varied from entire countries to single hospitals. For further details of the methodological approach and issues regarding comparability, refer to Chapter 2.

Hip fracture 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. The capacity to capture time of admission and surgery in hospital administrative data varies across countries, resulting in the inability to precisely record surgery within 48 hours in some countries.

While cases where the hip fractures occurred during the admission to hospital should be excluded, not all countries have a 'present on admission' flag in their datasets to enable them to identify such cases accurately.

References

[3] National Clinical Guideline Centre (2011), *The management of hip fracture in adults*, National Clinical Guideline Centre, London, *http://www.ncgc.ac.uk*.

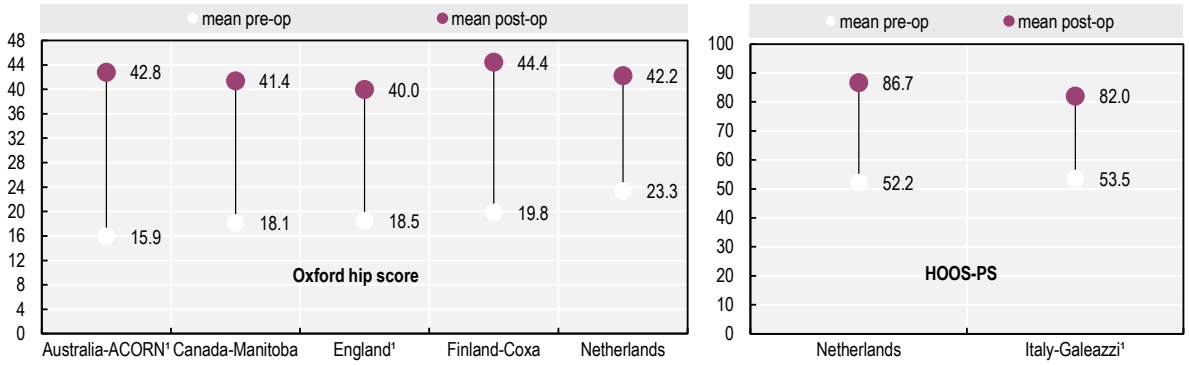
[1] NICE (2014), Osteoarthritis: care and management, The National Institute for Health and Care Excellence.

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

[5] OECD (forthcoming), "Patient-reported outcome indicators in joint replacement and breast cancer surgery", *OECD Health Working Papers*, OECD Publishing, Paris.

[4] Siciliani, L., M. Borowitz and V. Moran (eds.) (2013), *Waiting Time Policies in the Health Sector: What Works?*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264179080-en*.

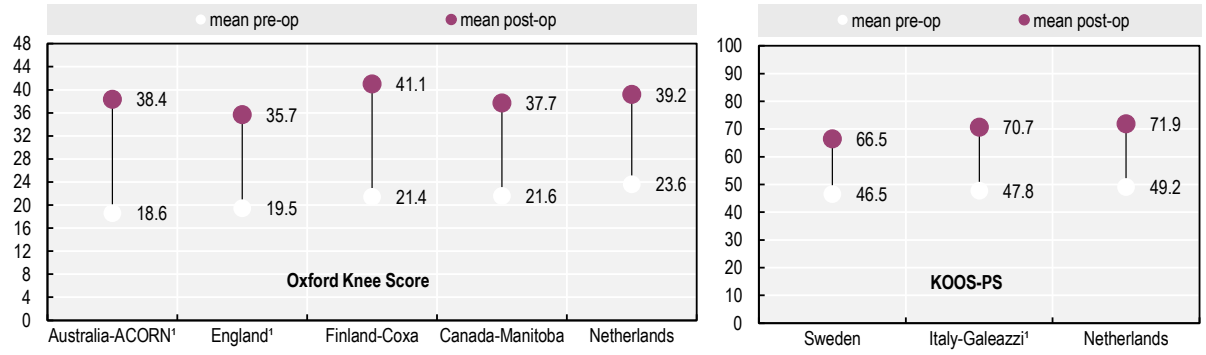
Figure 6.21. **Crude mean pre- and post-operative Oxford Hip Score and HOOS-PS, 2013-16 (or nearest year)**



1. Post-operative measurement at six months.
Source: PaRIS Hip/Knee Replacement Pilot Data Collection.

StatLink https://doi.org/10.1787/888934016341

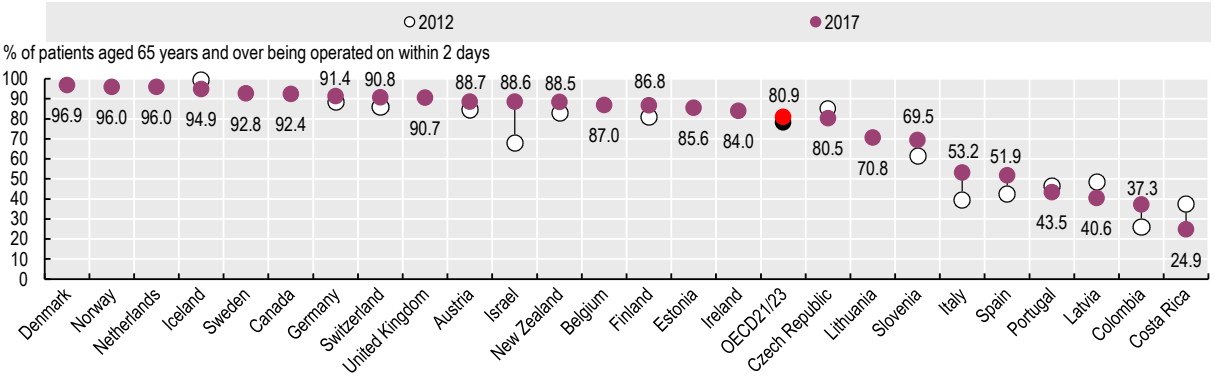
Figure 6.22. **Crude mean pre- and post-operative Oxford Knee Score and KOOS-PS, 2013-16 (or nearest year)**



1. Post-operative measurement at six months.
Source: PaRIS Hip/Knee Replacement Pilot Data Collection.

StatLink https://doi.org/10.1787/888934016360

Figure 6.23. **Hip fracture surgery initiation within two days of admission to hospital, 2012 and 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016379

Care for people with mental health disorders

The burden of mental illness is substantial, affecting an estimated one in five people among the population of OECD countries at any given time, and one in two across the life course (see indicator "Mental health" in Chapter 3). The total cost of mental ill health is estimated at between 3.5% and 4% of GDP in OECD countries (OECD, 2018[1]). High-quality, timely care has the potential to improve outcomes and may help reduce suicide and excess mortality for individuals with mental disorders.

High-quality care for mental disorders in inpatient settings is vital, and 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 inpatient suicide rates below 10 per 10 000 patients, but Denmark is an exception, with rates of over 10 (Figure 6.24). Steps to prevent inpatient suicide include identification and removal of likely opportunities for self-harm, risk assessment of patients, monitoring and appropriate treatment plans. While inpatient suicide should be considered a never event, some practices that reduce risk of inpatient suicide – such as use of restraints – may impede high-quality care.

Suicide rates after hospital discharge can indicate the quality of care in the community, as well as co-ordination between inpatient and community settings. Across OECD countries, suicide rates among patients who had been hospitalised in the previous year was as low as 10 per 10 000 patients in Iceland and the United Kingdom but higher than 50 per 10 000 in the Netherlands, Slovenia and Lithuania (Figure 6.25). Patients with a psychiatric illness are particularly at risk immediately following discharge from hospital, but it is known that suicide in the high-risk days following discharge can be reduced by good discharge planning and follow-up, and enhanced levels of care immediately following discharge.

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. Figure 6.26 shows the excess mortality for schizophrenia and bipolar disorder, which is above two in most countries. In order to reduce their high mortality, a multifaceted approach is needed for people with mental disorders, including primary care prevention of physical ill health, better integration of physical and mental health care, behavioural interventions and changing professional attitudes (OECD, 2014[2]).

Patient experiences can also shed light on the quality of care provided to individuals diagnosed with a mental problem. On average across OECD countries, patients diagnosed with a mental health problem are less likely to report that they were treated with courtesy and respect by doctors and nurses during hospitalisation than hospitalised patients never diagnosed with a mental health problem (Figure 6.27).

In addition, in several countries including Australia, Sweden and France, people diagnosed with a mental health problem are more likely to have received conflicting information from different health care professionals (see Chapter 2). This suggests that there is a room to improve the quality of care for people with mental health problems.

Definition and comparability

The inpatient suicide indicator is composed of a denominator of patients discharged with a principal diagnosis or first two secondary diagnosis code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99) and a numerator of these patients with a discharge code of suicide (ICD-10 codes X60-X84). Data should be interpreted with caution due to a very small number of cases. Reported rates can vary over time, so where possible a three-year average has been calculated to give more stability to the indicator, except for New Zealand.

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).

For the excess mortality indicators, the numerator is the overall mortality rate for persons aged between 15 and 74 diagnosed with schizophrenia or bipolar disorder. The denominator is the overall mortality rate for the general population in the same age group. The relatively small number of people with schizophrenia or bipolar disorder dying in any given year can cause substantial variations from year to year, so three-year averages were presented.

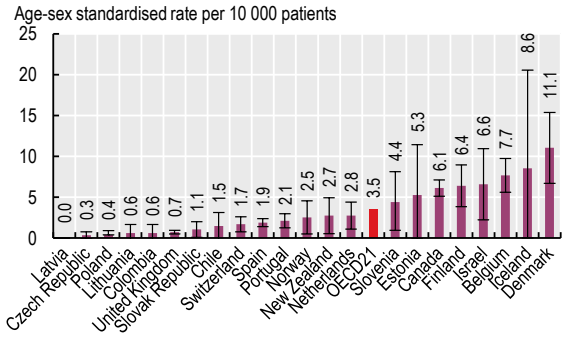
For information on patient experience monitoring see the 2016 Commonwealth Fund International Health Policy Survey of Adults. Differences between countries should be interpreted with care, given the heterogeneity in nature and the size of country samples.

References

[1] OECD (2018), *Health at a Glance: Europe 2018: State of Health in the EU Cycle*, OECD Publishing, Paris/European Union, Brussels, *https://dx.doi.org/10.1787/health_glance_eur-2018-en*.

[2] OECD (2014), *Making Mental Health Count: The Social and Economic Costs of Neglecting Mental Health Care*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264208445-en*.

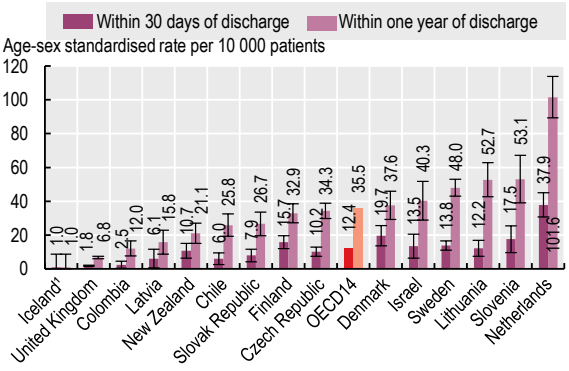
Figure 6.24. **Inpatient suicide among patients with a psychiatric disorder, 2015-17 (or nearest year)**



Note: H lines show 95% confidence intervals.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016398

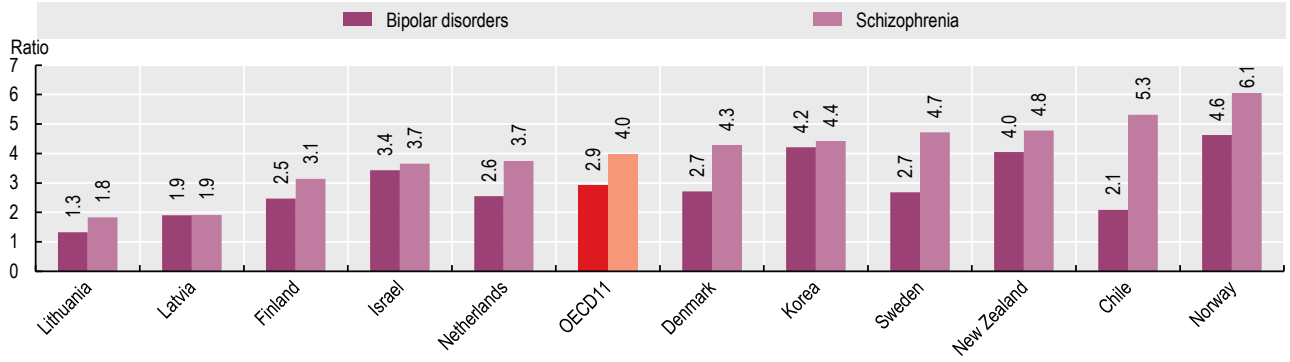
Figure 6.25. **Suicide following hospitalisation for a psychiatric disorder, within 30 days and one year of discharge, 2017 (or nearest year)**



1. Three-year average.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016417

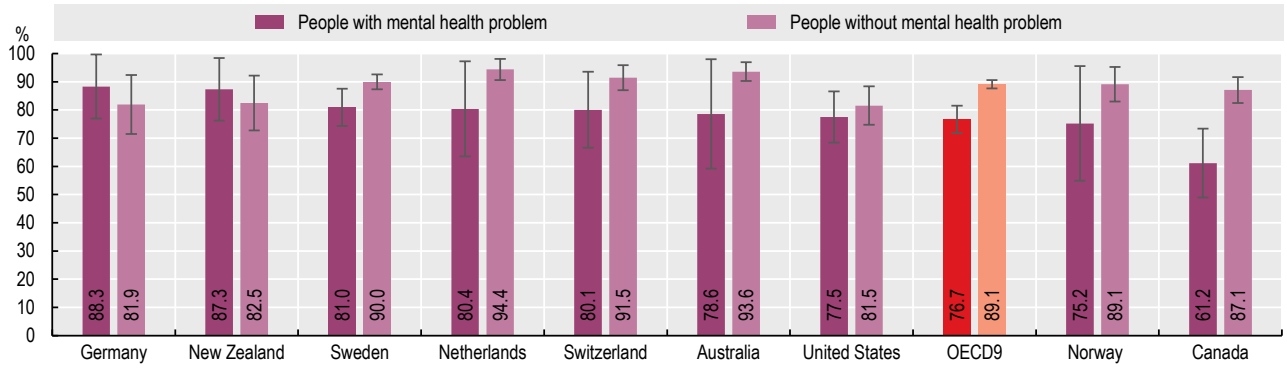
Figure 6.26. **Excess mortality from bipolar disorder and schizophrenia, 2015-17**



Note: Data represent a three-year average except for the Netherlands (two-year average).
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934016436

Figure 6.27. **Share of people who were treated with courtesy and respect by doctors and nurses during hospitalisation, 2016**



Note: H lines show 95% confidence intervals.
Source: Commonwealth Fund International Health Policy Survey 2016.

StatLink https://doi.org/10.1787/888934016455

Breast cancer outcomes

Breast cancer is the cancer with the highest incidence among women in all OECD countries, and the second most common cause of cancer death among women (see indicator "Cancer incidence and mortality" in Chapter 3).

During 2010-14, an average of 51.5% of women with breast cancer were diagnosed at an early stage of disease in OECD countries, while 8.6% of women were diagnosed at an advanced stage (Figure 6.28). Countries with a high proportion of women diagnosed at an early stage, such as the United States and Japan, have a correspondingly low proportion of women diagnosed at an advanced stage. Since the 1980s, most OECD countries have adopted breast cancer screening programmes as an effective way of detecting the disease early (OECD, 2013[1]). This has contributed to higher proportions of women being diagnosed at an early stage.

In most OECD countries, five-year net survival for women with breast cancer has improved in recent years, reflecting overall improvement in the quality of cancer care (Allemani et al., 2018[2]). In all OECD countries, for women diagnosed at early or localised stage, the cumulative probability of surviving their cancer for at least five years is 90% and the international variation is small (Figure 6.29). However, net survival for women diagnosed at an advanced stage is still low and ranges widely, from about 30% in Austria and Lithuania to over 50% in Israel and Finland.

Motivated providers and patients across OECD countries are increasingly using patient-reported outcome measures (PROMs) for breast cancer to help inform difficult clinical decisions. Figure 6.30 presents crude outcome scores at 6-12 months following breast surgery (breast-conserving therapy and breast reconstruction) for 11 clinical sites from eight countries. Outcomes were measured using the relevant post-operative breast satisfaction scales from the BREAST-Q tool, an internationally validated instrument used to measure breast surgery outcomes reported by patients (Pusic et al., 2009[3]). Further results and analysis of this measure are provided in Chapter 2.

Figure 6.31 presents the proportion of women undergoing implant and autologous reconstruction surgery in the sample from each site. Consolidated crude scores from the participating sites indicate that women are about 10% (6 percentage points) more satisfied with their breasts after autologous reconstruction surgery than after implant reconstruction (see Figure 2.9 in Chapter 2). This outcome aligns with existing evidence (Matros et al., 2015[4]) and can be an important consideration if choice of surgical intervention is possible.

These PROMs results are not representative for each country but do show the capacity for metrics of this kind to be reported internationally. Some OECD countries are now scaling up efforts to measure breast cancer PROMs as their utility becomes more fully appreciated. For example, in the Netherlands, breast cancer has been identified as a possible priority area as part of a current national policy effort to measure PROMs systematically.

Definition and comparability

The stage at diagnosis for breast cancer is categorised according to the Tumour, Nodes, Metastasis (TNM) staging system. In this analysis, "early or localised stages" refers to tumours without lymph node involvement or metastasis (T1-3, N0, M0), "intermediate stage" refers to tumours with lymph node involvement but no metastasis (T1-3, N1-3, M0), and "advanced stage" refers to large tumours with ulceration or involvement of the chest wall, and those that have metastasised to other organs (T4, any N, M0 or M1).

Five-year net survival refers to the cumulative probability that the cancer patients would have lived five years after diagnosis if the cancer was the only possible cause of death. The period approach is used to allow estimation of five-year survival where five years of follow-up are not available. Cancer survival estimates are age-standardised with the International Cancer Survival Standard weights.

Cancer patient data were provided by national or regional cancer registries. Quality control and analysis for stage distribution and age-standardised five-year net survival were performed centrally as part of CONCORD, the global programme for the surveillance of cancer survival, led by the London School of Hygiene and Tropical Medicine (Allemani et al., 2018[2]).

See Box 2.3 in Chapter 2 for more details regarding the BREAST-Q breast satisfaction scale used to measure the breast cancer PROMs. Data are only presented for selected sites and are not representative for each country. Note that measurement extended beyond 12 months after surgery for sites in Sweden and Switzerland.

References

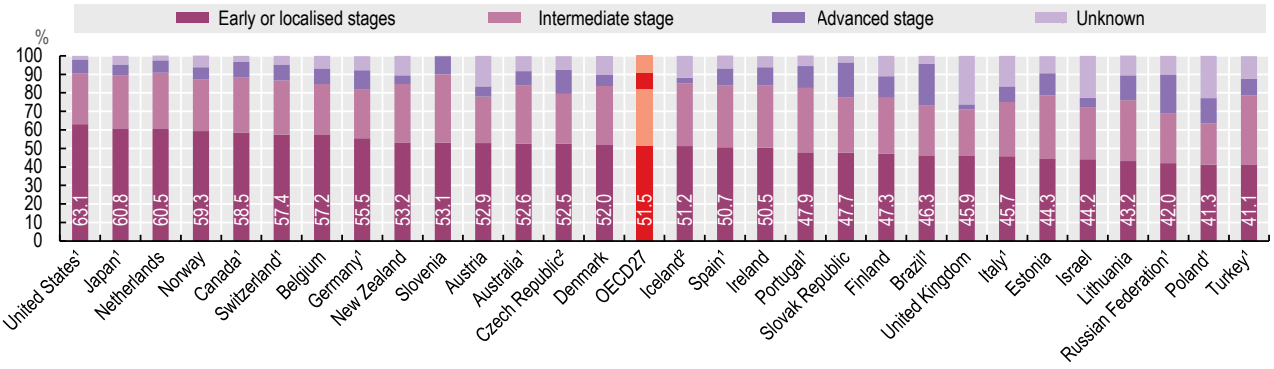
[2] Allemani, C. et al. (2018), "Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries", *The Lancet*, Vol. 391/10125, pp. 1023-1075, *http://dx.doi.org/10.1016/s0140-6736(17)33326-3*.

[4] Matros, E. et al. (2015), "Cost-Effectiveness Analysis of Implants versus Autologous Perforator Flaps Using the BREAST-Q", *Plastic and Reconstructive Surgery*, Vol. 135/4, pp. 937-946, *http://dx.doi.org/10.1097/prs.0000000000001134*.

[1] OECD (2013), *Cancer Care: Assuring Quality to Improve Survival*, OECD Health Policy Studies, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264181052-en*.

[3] Pusic, A. et al. (2009), "Development of a New Patient-Reported Outcome Measure for Breast Surgery: The BREAST-Q", *Plastic and Reconstructive Surgery*, Vol. 124/2, pp. 345-353, *http://dx.doi.org/10.1097/prs.0b013e3181aee807*.

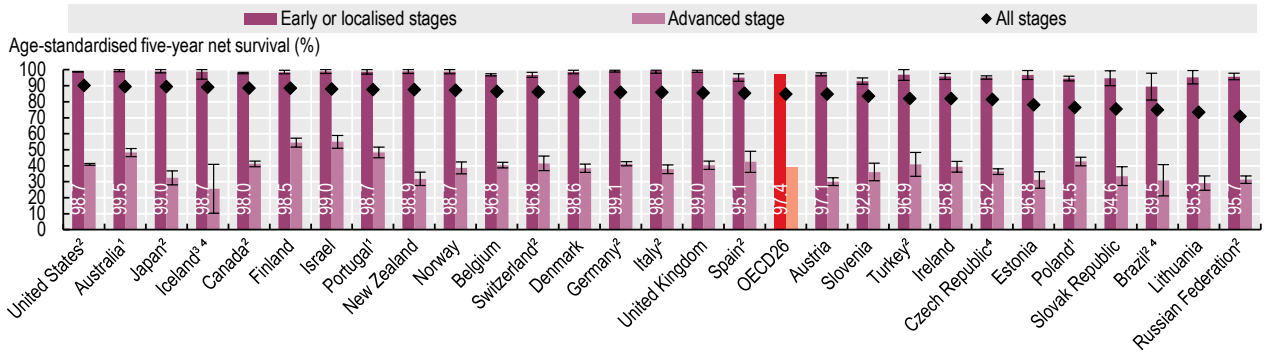
Figure 6.28. **Breast cancer stage distribution, 2010-14**



1. Data represent coverage of less than 100% of the national population. 2. Data for 2004-09.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://doi.org/10.1787/888934016474

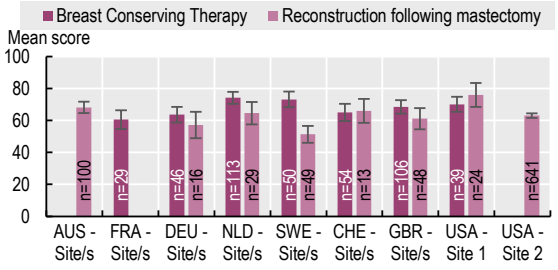
Figure 6.29. **Breast cancer five-year net survival by stage of breast cancer at diagnosis, 2010-14**



Note: H line shows 95% confidence intervals. 1. Coverage is less than 100% of the national population for stage-specific survival estimates. 2. Coverage is less than 100% of the national population. 3. Survival estimates for advanced stage are not age-standardised. 4. Data for 2004-09.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://doi.org/10.1787/888934016493

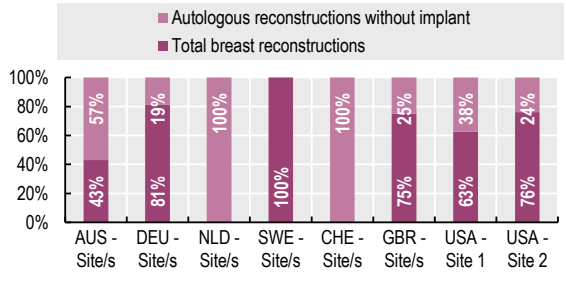
Figure 6.30. **Self-reported satisfaction with breast surgery: crude scores 6-12 months after surgery, 2017-18 (or nearest year)**



Note: H line shows 95% confidence intervals. Data labels at the base of the histogram refer to the sample size at each site.
Source: PaRIS Breast Cancer PROMs pilot data collection 2019.

StatLink https://doi.org/10.1787/888934016512

Figure 6.31. **Type of breast reconstruction surgery, proportion of total, 2017-18 (or nearest year)**



Source: PaRIS Breast Cancer PROMs pilot data collection 2019.

StatLink https://doi.org/10.1787/888934016531