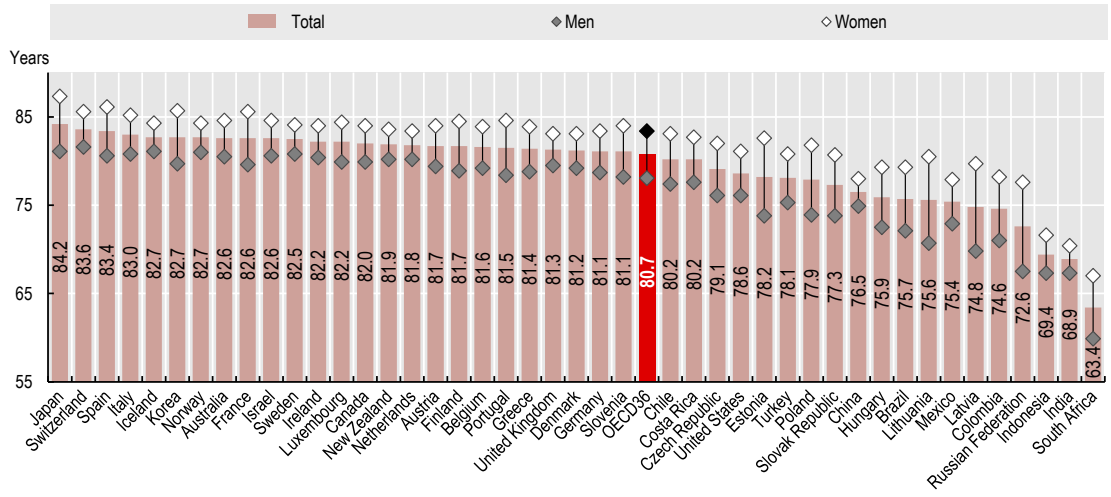
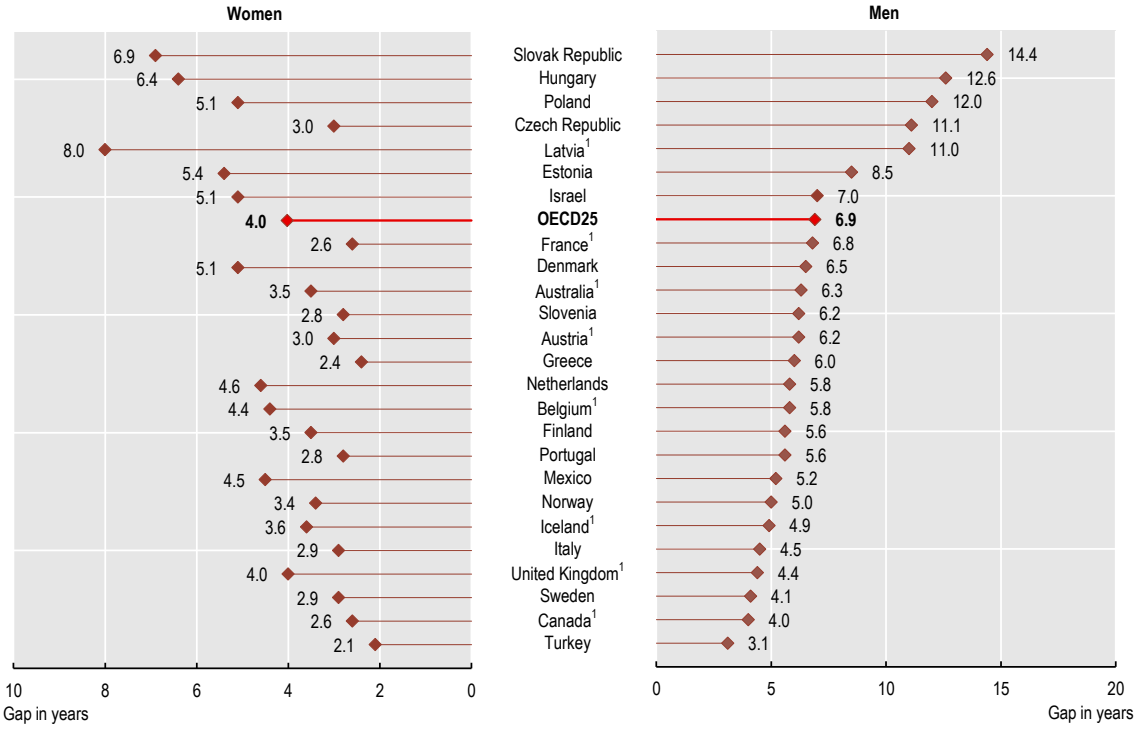
Figure 3.4. **Life expectancy at birth by sex, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934014878

Figure 3.5. **Gap in life expectancy at age 30 between highest and lowest education level, by sex, latest available year**



1. 2010-12 data. All other data are from 2015-17.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934014897

Main causes of mortality

Over 10 million people died in 2017 across OECD countries, equivalent to about 800 deaths per 100 000 population (Figure 3.6). All-cause mortality rates ranged from under 600 deaths per 100 000 in Japan to over 1 100 deaths per 100 000 in Latvia, Hungary and Lithuania (age-standardised rates). Among partner countries, mortality rates were highest in South Africa and the Russian Federation (1 940 and 1 417 per 100 000 deaths respectively).

Age-standardised mortality rates were 50% higher for men than women across OECD countries (997 per 100 000 population for men, compared with 655 for women). In Lithuania, Latvia and Hungary there were about 1 500 deaths per 100 000 men. For women, mortality rates were highest in Hungary, Chile and Latvia. Among partner countries, male mortality rates were around 2 400 deaths per 100 000 in South Africa and almost 2 000 in the Russian Federation. These countries also had the highest female mortality rates. Gender gaps are partly due to greater exposure to risk factors – particularly smoking, alcohol consumption and less healthy diets – alongside intrinsic gender differences. Accordingly, men had higher death rates from heart diseases, lung cancers and injuries, among other diseases.

Diseases of the circulatory system and cancer are the two leading causes of death in most countries. This reflects the epidemiological transition from communicable to non-communicable diseases, which has already taken place in high-income countries and is rapidly occurring in many middle-income countries (GBD 2017 Causes of Death Collaborators, 2018[1]). Across OECD countries, heart attacks, strokes and other circulatory diseases caused about one in three deaths; and one in four deaths were related to cancer in 2017 (Figure 3.7). Population ageing largely explains the predominance of deaths from circulatory diseases – with deaths rising steadily from age 50 and above.

Respiratory diseases were also a major cause of death, accounting for 10% of deaths across OECD countries. Chronic obstructive respiratory disease (COPD) alone accounted for 4% of all deaths. Smoking is the main risk factor for COPD, but occupational exposure to dusts, fumes and chemicals, and air pollution in general are also important risk factors.

External causes of death were responsible for 6% of deaths across OECD countries, particularly road traffic accidents and suicides. Road traffic accidents are a particularly important cause of death among young adults, whereas suicide rates are generally higher among middle-aged and older people.

Looking at other specific causes, Alzheimer's and other dementias accounted for 9% of all deaths, and were a more important cause of death among women. Diabetes represented 3% of all deaths across OECD countries. The main causes of death differ between socio-economic groups, with social disparities generally larger for the most avoidable diseases (Mackenbach et al., 2015[2]).

Definition and comparability

Mortality rates are based on the number of deaths registered in a country in a year divided by the population. Rates have been directly age-standardised to the 2010 OECD population (available at *http://oe.cd/mortality*) to remove variations arising from differences in age structures across countries and over time. The source is the World Health Organization (WHO) Mortality Database.

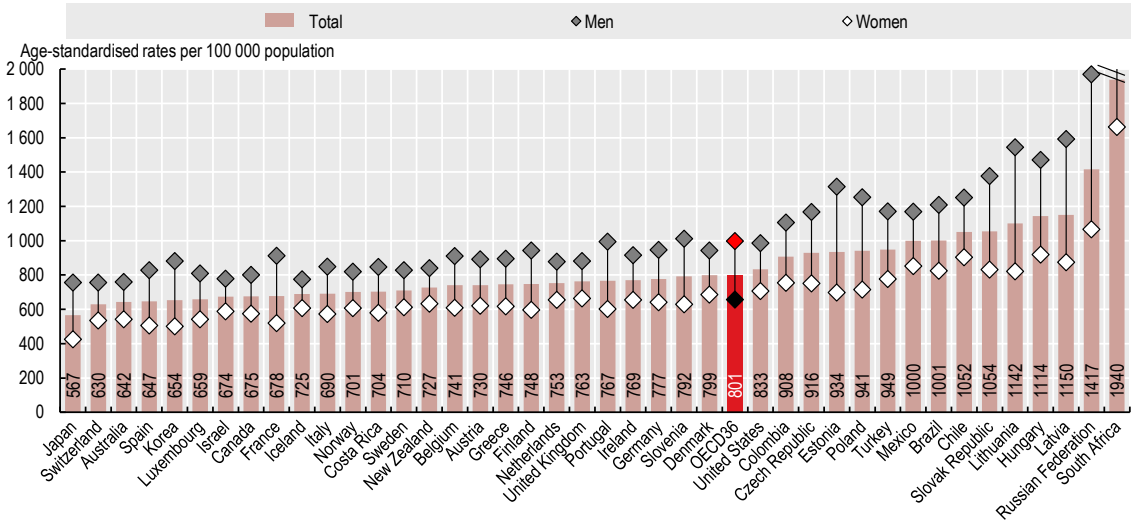
Deaths from all causes are classified to ICD-10 codes A00-Y89, excluding S00-T98. The classification of causes of death defines groups and subgroups. Groups are umbrella terms covering diseases that are related to each other; subgroups refer to specific diseases. For example, the group diseases of the respiratory system comprises four subgroups: influenza, pneumonia, chronic obstructive pulmonary diseases and asthma. Charts are based on this grouping, except for Alzheimer's and other dementias. These were grouped together (Alzheimer's is classified in Chapter G and other dementias in Chapter F).

References

[1] GBD 2017 Causes of Death Collaborators (2018), "Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017", *The Lancet*, Vol. 392/10159, pp. 1736-1788.

[2] Mackenbach, J. et al. (2015), "Variations in the relation between education and cause-specific mortality in 19 European populations: A test of the 'fundamental causes' theory of social inequalities in health", *Social Science and Medicine*, Vol. 127, pp. 51-62.

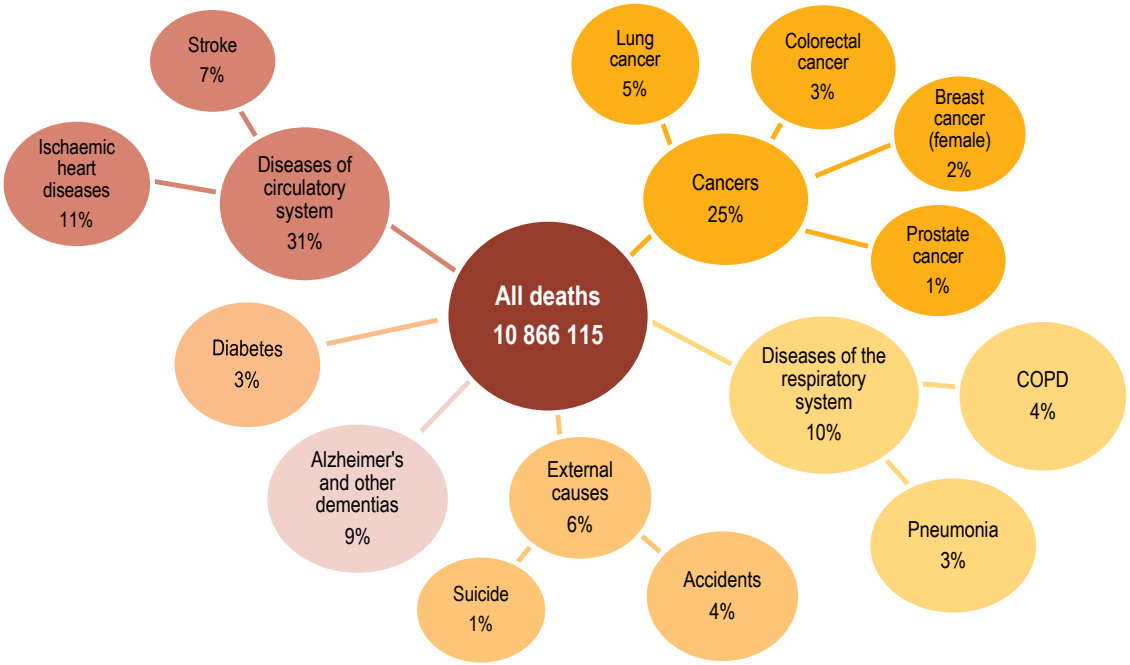
Figure 3.6. **All-cause mortality rates, by gender, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934014916

Figure 3.7. **Main causes of mortality across OECD countries, 2017 (or nearest year)**



Note: Other causes of death not shown in the figure represent 15% of all deaths.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934014935

Avoidable mortality (preventable and treatable)

Indicators of avoidable mortality can provide a general "starting point" to assess the effectiveness of public health and health care systems in reducing premature deaths from various diseases and injuries. However, further analysis is required to assess more precisely different causes of potentially avoidable deaths and interventions to reduce them.

In 2017, almost 3 million premature deaths across OECD countries could have been avoided through better prevention and health care interventions. This amounts to over one quarter of all deaths. Of these deaths, about 1.85 million were considered preventable through effective primary prevention and other public health measures, and over 1 million were considered treatable through more effective and timely health care interventions.

Some cancers that are preventable through public health measures were the main causes of preventable mortality (32% of all preventable deaths), particularly lung cancer (Figure 3.8). Other major causes were external causes of death, such as road accidents and suicide (25%); heart attack, stroke and other circulatory diseases (19%); alcohol and drug-related deaths (9%); and some respiratory diseases such as influenza and chronic obstructive pulmonary disease (8%).

The main treatable cause of mortality is circulatory diseases (mainly heart attack and stroke), which accounted for 36% of premature deaths amenable to treatment. Effective, timely treatment for cancer, such as colorectal and breast cancers, could have averted a further 26% of all deaths from treatable causes. Diabetes and other diseases of the endocrine system (9%) and respiratory diseases such as pneumonia and asthma (9%) are other major causes of premature deaths that are amenable to treatment.

The average aged-standardised mortality rate from preventable causes was 133 deaths per 100 000 people across OECD countries. Premature deaths ranged from under 96 per 100 000 in Israel, Switzerland, Japan, Italy, Spain and Sweden to over 200 in Latvia, Hungary, Lithuania and Mexico (Figure 3.9). Higher rates of premature death in these countries were mainly due to much higher mortality from ischaemic heart disease, accidents and alcohol-related deaths, as well as lung cancer in Hungary.

The mortality rates from treatable causes across OECD countries was much lower, at 75 per 100 000 population. It ranged from less than 50 in Switzerland, Iceland, Norway, Korea, France and Australia, to over 130 deaths per 100 000 people in Latvia, Mexico, Lithuania and Hungary. Ischaemic heart diseases, strokes and some types of treatable cancers (e.g. colorectal and breast cancers) were the main drivers in Latvia, Lithuania and Hungary, countries with some of the highest treatable mortality rates.

Preventable mortality rates were 2.6 times higher among men than among women across OECD countries (197 per 100 000 population for men, compared with 75 for women). Similarly, mortality rates from treatable causes were about 40% higher among men than women, with a rate of 87 per 100 000 population for men compared with 62 for women. These gender gaps are explained by higher mortality rates among men, which are in part linked to different exposure to risk factors such as tobacco smoking (see indicator Main causes of mortality).

Definition and comparability

Based on the 2019 OECD/Eurostat definitions, preventable mortality is defined as causes of death that can be mainly avoided through effective public health and primary prevention interventions (i.e. before the onset of diseases/injuries, to reduce incidence). Treatable (or amenable) mortality is defined as causes of death that can be mainly avoided through timely and effective health care interventions, including secondary prevention and treatment (i.e. after the onset of diseases, to reduce case-fatality).

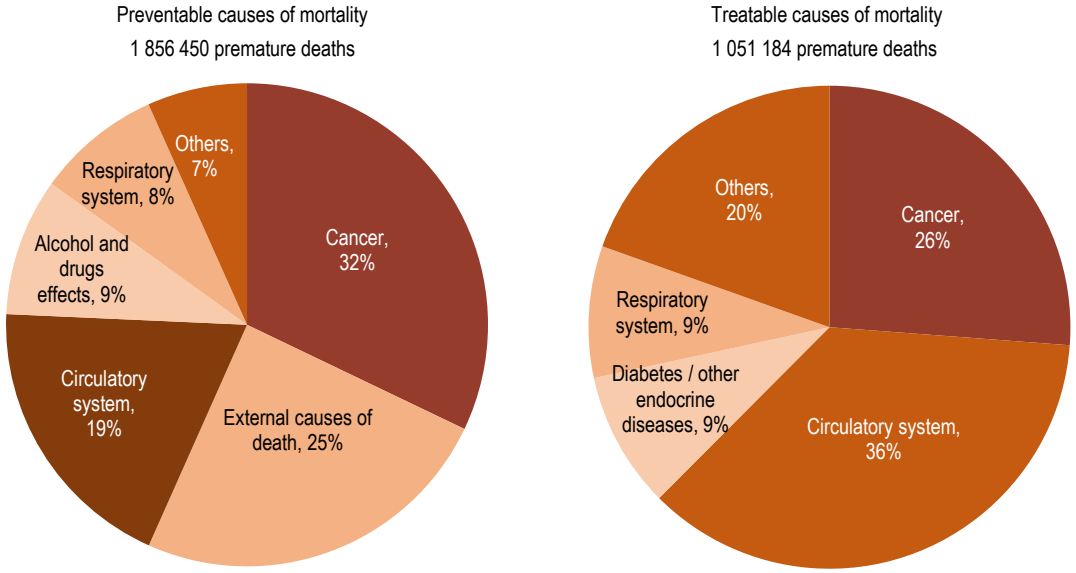
The two current lists of preventable and treatable mortality were adopted by the OECD and Eurostat in 2019. The attribution of each cause of death to the preventable or treatable mortality category was based on the criterion of whether it is predominantly prevention or health care interventions that can reduce it. Causes of death that can be both largely prevented and also treated once they have occurred were attributed to the preventable category on the rationale that if these diseases are prevented, there would be no need for treatment. In cases when there was no strong evidence of predominance of preventability or treatability (e.g. ischaemic heart disease, stroke, diabetes), the causes were allocated on a 50%-50% basis to the two categories to avoid double-counting the same cause of death in both lists. The age threshold of premature mortality is set at 74 years for all causes (OECD/Eurostat, 2019[1]).

Data come from the WHO Mortality Database and the mortality rates are age-standardised to the OECD 2010 Standard Population (available at *http://oe.cd/mortality*).

References

[1] OECD/Eurostat (2019), "Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death", *http://www.oecd.org/health/health-systems/Avoidable-mortality-2019-Joint-OECD-Eurostat-List-preventable-treatable-causes-of-death.pdf*.

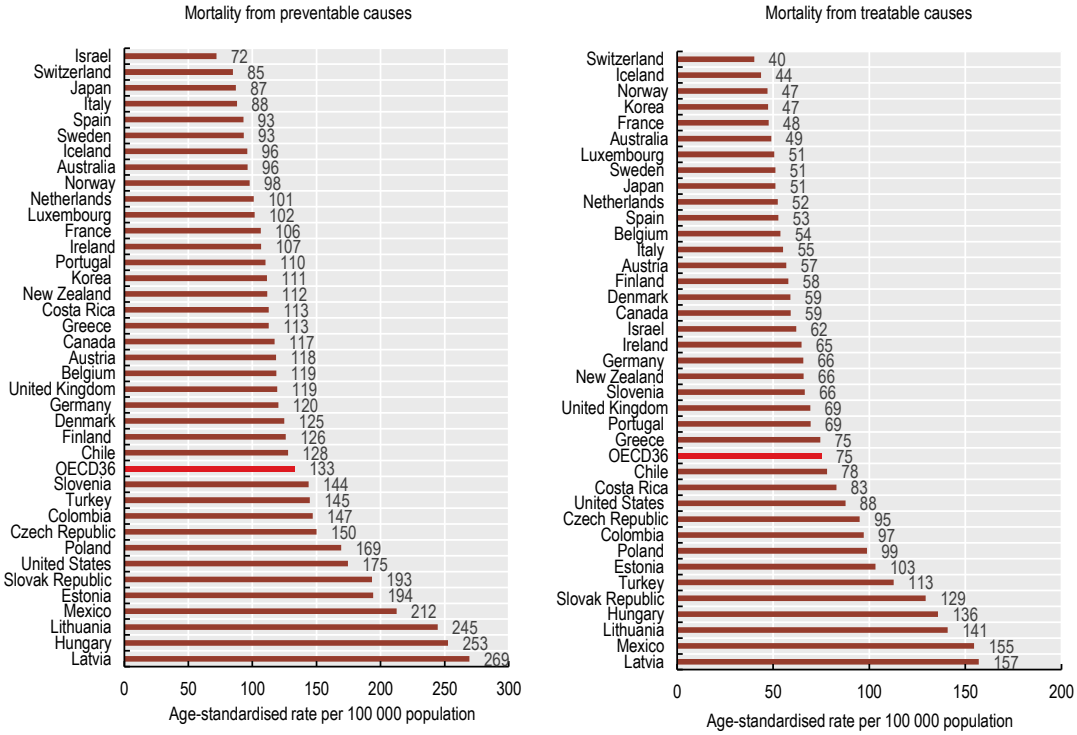
Figure 3.8. **Main causes of avoidable mortality, OECD countries, 2017 (or nearest year)**



Note: The 2019 OECD/Eurostat list of preventable and treatable causes of death classifies specific diseases and injuries as preventable and/or treatable. For example, lung cancer is classified as preventable; whereas breast and colorectal cancers are classified as treatable.
Source: OECD calculations, based on WHO Mortality Database.

StatLink https://doi.org/10.1787/888934014954

Figure 3.9. **Mortality rates from avoidable causes, 2017 (or nearest year)**



Source: OECD calculations, based on WHO Mortality Database.

StatLink https://doi.org/10.1787/888934014973

Mortality from circulatory diseases

Circulatory diseases – notably heart attack and stroke – remain the main cause of mortality in most OECD countries, accounting for almost one in three deaths across the OECD. While mortality rates have declined in most OECD countries over time, population ageing, rising obesity and diabetes rates may hamper further reductions (OECD, 2015[1]). Indeed, slowing improvements in heart disease and stroke are one of the principal causes of a slowdown in life expectancy gains in many countries (Raleigh, 2019[2]).

Heart attacks and other ischaemic heart diseases (IHDs) accounted for 11% of all deaths in OECD countries in 2017. IHDs are caused by the accumulation of fatty deposits lining the inner wall of a coronary artery, restricting blood flow to the heart. Mortality rates are 80% higher for men than women across OECD countries, primarily because of a greater prevalence of risk factors among men, such as smoking, hypertension and high cholesterol.

Among OECD countries, central and eastern European countries have the highest IHD mortality rates, particularly in Lithuania where there are 383 deaths per 100 000 people (age-standardised). Rates are also very high in the Russian Federation. Japan, Korea and France have the lowest rates among OECD countries, at about one quarter of the OECD average and less than a tenth of rates in Lithuania and the Russian Federation (Figure 3.10).

Since 2000, IHD mortality rates have declined in nearly all OECD countries, with an average reduction of 42%. Declines have been most marked in France, Denmark, the Netherlands, Estonia and Norway, where rates fell by over 60%. Mexico is the one country where IHD mortality rates have increased; this is closely linked to increasing obesity rates and diabetes prevalence. Survival rates following a heart attack are also much lower in Mexico than in all other OECD countries (see indicator on "Mortality following acute myocardial infarction" in Chapter 6).

Stroke (or cerebrovascular disease) was the underlying cause of 7% deaths across the OECD in 2017. Disruption of the blood supply to the brain causes a stroke. As well as causing many deaths, strokes have a significant disability burden. Mortality rates are particularly high in Latvia and Lithuania, at over double the OECD average. Rates are also high in the partner countries such as South Africa and the Russian Federation (Figure 3.11).

Mortality rates from stroke have fallen in all OECD and partner countries since 2000, with an average reduction of 47%. Declines have been slower in the Slovak Republic and Chile, however, at less than 15%. For strokes, as for IHD, a reduction in certain risk factors – notably smoking – has contributed to fewer deaths, alongside improved survival rates following an acute episode, reflecting better quality of care (see indicators on "Mortality following ischaemic stroke" and "Mortality following acute myocardial infarction (AMI)" in Chapter 6).

Definition and comparability

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the 2010 OECD population (available at *http://oe.cd/mortality*) to remove variations arising from differences in age structures across countries and over time. The source is the WHO Mortality Database.

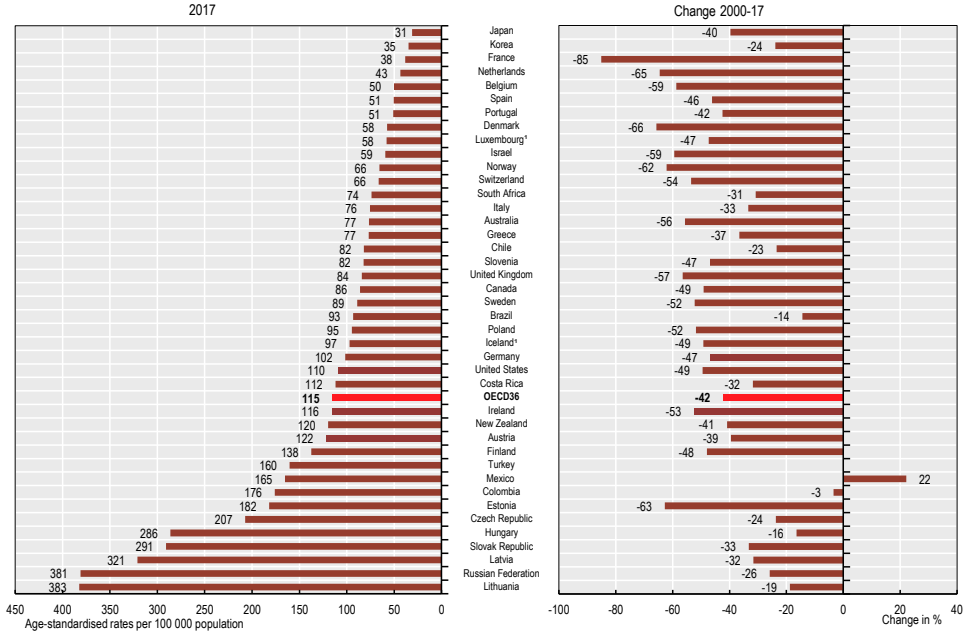
Deaths from ischaemic heart disease are classified to ICD-10 codes I20-I25, and cerebrovascular disease to I60-I69.

References

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

[2] Raleigh, V. (2019), "Trends in life expectancy in EU and other OECD countries: Why are improvements slowing?", *OECD Health Working Papers*, No. 108, OECD Publishing, Paris, *https://doi.org/10.1787/223159ab-en*.

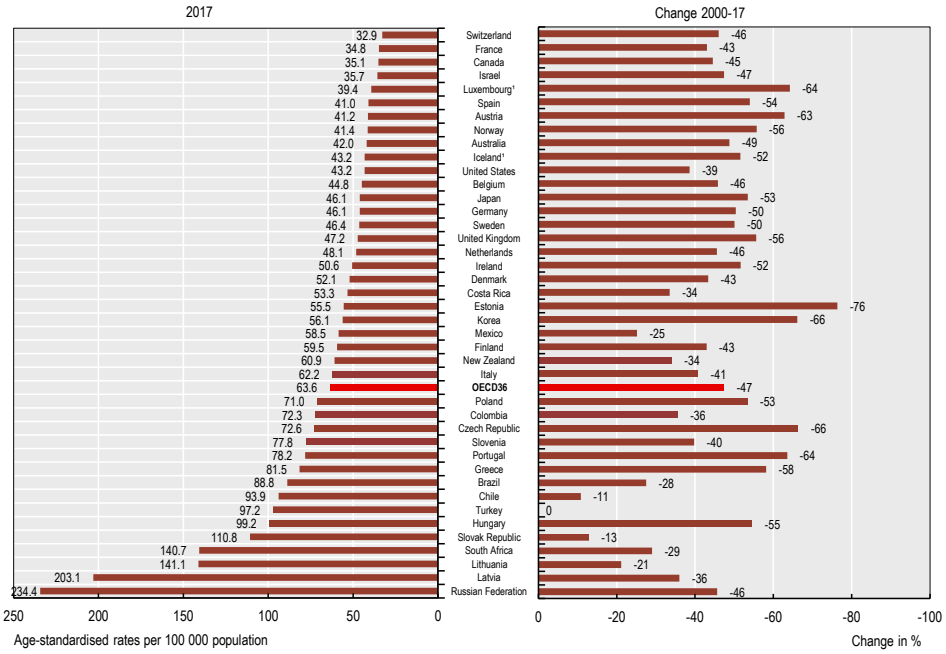
Figure 3.10. **Heart attacks and other ischaemic heart disease mortality, 2017 and change 2000-17 (or nearest year)**



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

StatLink https://doi.org/10.1787/888934014992

Figure 3.11. **Stroke mortality, 2017 and change 2000-17 (or nearest year)**



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

StatLink https://doi.org/10.1787/888934015011

Cancer incidence and mortality

Cancer is the second leading cause of mortality in OECD countries after circulatory diseases, accounting for 25% of all deaths in 2017. Further, there was an estimated 7.5 million newly diagnosed cases of cancer across the OECD. Common cancers are lung cancer (21.5%), colorectal cancer (11%), breast cancer (14.5% among women) and prostate cancer (9.4% amongst men). These four represent more than 40% of all cancers diagnosed in OECD countries. Mortality rates from cancer have fallen in all OECD countries since 2000, although across the OECD the decline has been more modest than for circulatory diseases.

Cancer incidence rates vary across OECD countries, from over 400 new cases per 100 000 people in Australia and New Zealand, to around 200 cases or fewer in Mexico and Chile (Figure 3.12). Cancer incidence is also comparatively low in all partner countries. Cross-country variations in incidence rates, though, reflect differences not only in new cancers occurring each year but also differences in national cancer screening policies, quality of cancer surveillance and reporting. High rates in Australia and New Zealand are mainly driven by the high incidence of non-melanoma skin cancer.

Mortality rates from cancer averaged 201 deaths per 100 000 people across the OECD (Figure 3.13). They were highest in Hungary, the Slovak Republic and Slovenia (above 240); lowest in Mexico, Turkey and Korea (165 or less). Among partner countries with comparable data, cancer mortality rates were also comparatively low in Colombia, Costa Rica and Brazil.

Earlier diagnosis and treatment significantly increase cancer survival rates. This partly explains why, for example, Australia and New Zealand have below average mortality rates despite having the highest rates of cancer incidence. In both countries, five-year net survival from common cancers is also above the OECD average (see various indicators on survival following cancer in Chapter 6).

Cancer incidence rates are higher for men than women in all OECD and partner countries; cancer mortality rates are also higher for men except in Mexico, Iceland, Indonesia and India. Greater prevalence of risk factors among men – notably smoking and alcohol consumption – drive much of this gender gap in cancer incidence and mortality.

Lung cancer is the main cause of death for both men and women, with smoking the main risk factor. It accounts for 25% of cancer deaths among men and 17% among women (Figure 3.14). Colorectal cancer is a major cause of death for men and women (second main cause for men and third for women, accounting for about 10% of cancer-related deaths for each sex). Apart from age and genetic factors, a diet high in fat and low in fibre, lack of physical activity, obesity, smoking and alcohol consumption all increase the risk of developing the illness.

Breast cancer is the second most common cause of cancer mortality in women (14.5% of deaths). While incidence rates for breast cancer have increased over the past decade, mortality has declined or stabilised, indicative of earlier diagnosis and treatment, and consequently higher survival rates (see indicator on "Breast cancer outcomes" in Chapter 6). Prostate cancer is the third most common cause of cancer mortality among men, accounting for just over 10% of all cancer-related deaths.

Definition and comparability

Cancer incidence rates are based on numbers of new cases of cancer registered in a country in a year divided by the population. Differences in the quality of cancer surveillance and reporting across countries may affect the comparability of data. Rates have been age-standardised based on Segi's world population to remove variations arising from differences in age structures across countries and over time. Data come from the International Agency for Research on Cancer (IARC), GLOBOCAN 2018. These data may differ from national estimates due to differences in methodology. The incidence of all cancers is classified to ICD-10 codes C00-C97.

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardised to the 2010 OECD population (available at *http://oe.cd/mortality*). The source is the WHO Mortality Database.

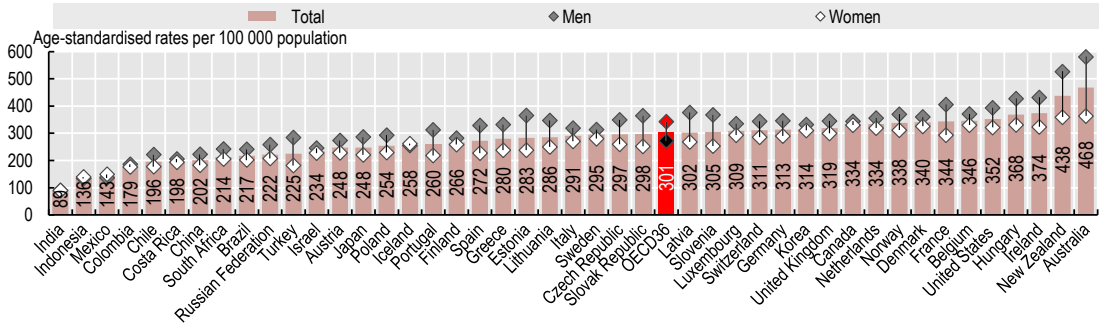
Deaths from all cancers are classified to ICD-10 codes C00-C97. The international comparability of cancer mortality data can be affected by differences in medical training and practices as well as in death certification across countries.

References

[1] GLOBOCAN (2018), *Cancer Today*, *https://gco.iarc.fr/today/home*.

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

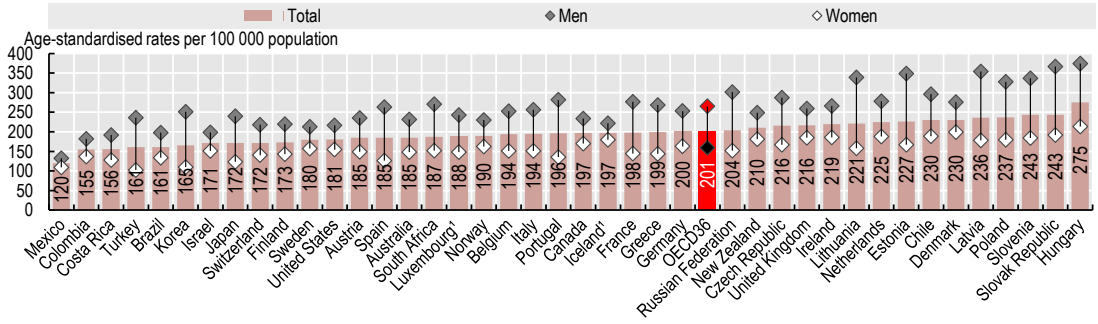
Figure 3.12. **All cancer incidence by sex, 2018 (estimated)**



Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2018.

StatLink https://doi.org/10.1787/888934015030

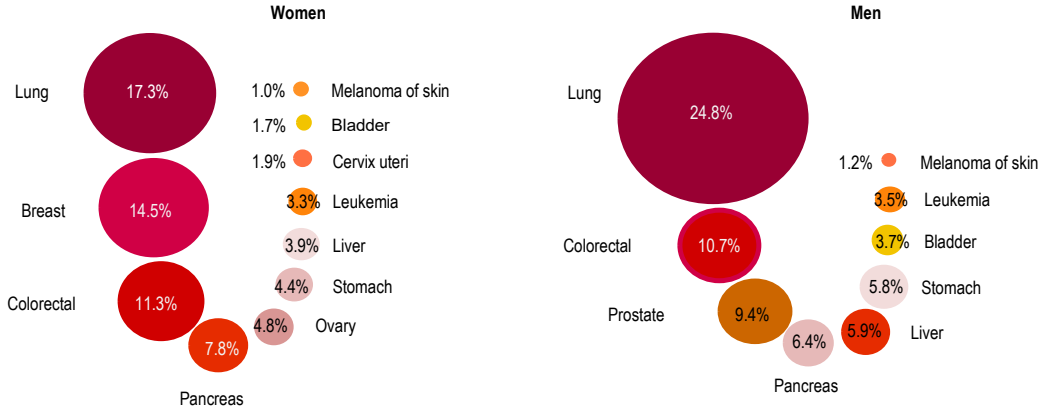
Figure 3.13. **Cancer mortality, by sex, 2017 (or nearest year)**



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

StatLink https://doi.org/10.1787/888934015049

Figure 3.14. **Main causes of cancer mortality across OECD countries, by sex, 2017 (or nearest year)**



Note: Proportion of the sums of cancer-related deaths across OECD countries, by sex.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015068

Chronic disease morbidity

Chronic diseases such as cancer, heart attack and stroke, chronic respiratory problems and diabetes are not only the leading causes of death across OECD countries. They also represent a major disability burden amongst the living. Many chronic diseases are preventable, by modifying major risk factors such as smoking, alcohol use, obesity and physical inactivity.

Almost one third of people aged 15 years and over reported living with two or more chronic conditions, on average across 27 OECD countries (Figure 3.15). In Germany and Finland, this figure rises to almost one in two. Multi-morbidity is far more common among older age groups – on average, 58% of adults aged 65 or over reported living with two or more chronic diseases, and this figure rises to 70% or more in Portugal, Poland, Hungary, the Slovak Republic and Germany. This compares with 24% for people aged less than 65 years reporting two or more chronic conditions.

Socioeconomic disparities are also large: on average across OECD countries, 35% of people in the lowest income quintile report two or more chronic conditions, compared with 24% of people in the highest income quintile (Figure 3.16). This income gradient is largest in Hungary, Slovenia and Latvia.

Diabetes is a chronic condition with a particularly large disability burden, causing cardiovascular disease, blindness, kidney failure and lower limb amputation. It occurs when the body is unable to regulate excessive glucose levels in the blood. In 2017, about 98 million adults – or 6.4% of the adult population – were living with diabetes across OECD countries (Figure 3.17). In addition, a further 39 million adults were estimated to have undiagnosed diabetes (International Diabetes Federation, 2017[1]).

Among OECD countries, diabetes prevalence is highest in Mexico, Turkey and the United States, with over 10% of adults living with diabetes (age-standardised data). For partner countries, diabetes prevalence is also high in India and China, at around 10%.

Age-standardised diabetes prevalence rates have stabilised in many OECD countries, especially in western Europe, but have increased markedly in Turkey and most partner countries. Such upward trends are due in part to rising rates of obesity and physical inactivity, and to their interactions with population ageing (NCD Risk Factor Collaboration, 2016[2])

Diabetes is much more common among older people, and slightly more men than women have the condition. Diabetes also disproportionately affects those from disadvantaged socio-economic groups. The economic burden of diabetes is substantial. In OECD countries an estimated USD 572 billion was spent on treating diabetes and preventing complications (International Diabetes Federation, 2017[1]).

Definition and comparability

Data on multiple chronic diseases come from three different sources: Eurostat's European Health Interview Survey (EHIS-2) for European countries; the Medical Panel Expenditures Survey (MEPS) 2016 for the United States; and the Canadian Community Health Survey (CCHS) 2015-16 for Canada. The following chronic diseases and conditions are available in each survey:

- EHIS-2: asthma (1), chronic bronchitis/COPD/ emphysema (2), heart attack and chronic consequences (3), coronary heart disease (4), hypertension (5), stroke and chronic consequences (6), arthrosis, low back disorder (7), neck disorder (8), diabetes (9), allergy (10), cirrhosis of the liver (11), urinary incontinence (12), kidney problems (13) and depression (14).
- MEPS and CCHS: (1) – (6), (9) and (14).

As fewer conditions are available for both Canada and the United States, multi-morbidity prevalence is mechanically lower for these countries, and thus not comparable with European data.

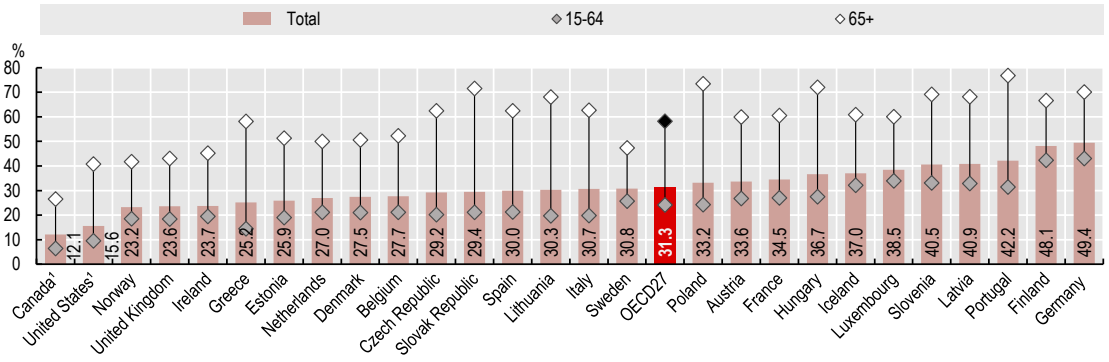
Sources and methods used by the International Diabetes Federation (IDF) are outlined in the Diabetes Atlas, 8th edition (International Diabetes Federation, 2017). The IDF produces estimations based on a variety of sources that met several criteria for reliability. The majority were national health surveys and peer-reviewed articles. Age-standardised rates were calculated using the world population based on the distribution provided by the WHO. Adult population here covers those aged between 20 and 79 with Type 1 or Type 2 diagnosed diabetes.

References

[1] International Diabetes Federation (2017), *IDF Diabetes Atlas, 8th edition*, International Diabetes Federation, Brussels.

[2] NCD Risk Factor Collaboration (2016), "Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4.4 million participants", *Lancet*, Vol. 387, pp. 1513-1530, *http://dx.doi.org/10.1016/S0140-6736(16)00618-8*.

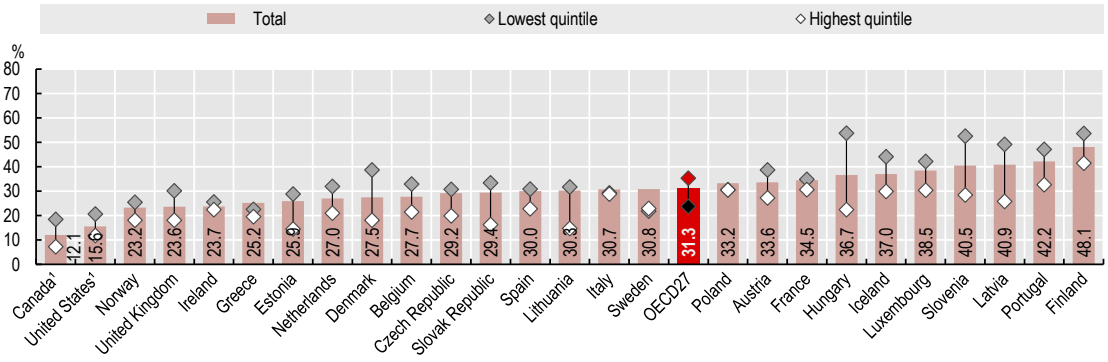
Figure 3.15. **People living with two or more chronic diseases, by age, 2014**



1. Results not directly comparable with those for other countries, due to differences in the variable definition (8 chronic conditions considered instead of 14), resulting in a downward bias.
Source: EHIS-2 2014 and other national health surveys.

StatLink https://doi.org/10.1787/888934015087

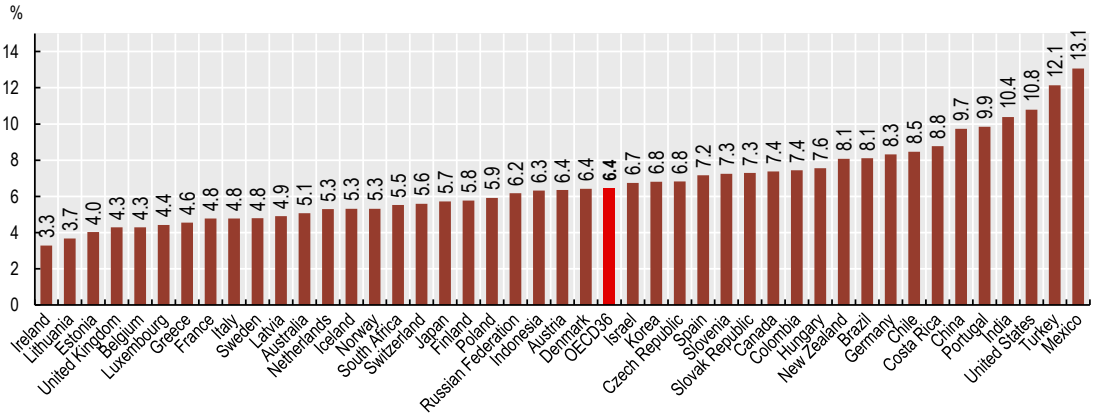
Figure 3.16. **People living with two or more chronic diseases, by income level, 2014**



1. Results not directly comparable with those for other countries (see note in Figure 3.15).
Source: EHIS-2 2014 and other national health surveys.

StatLink https://doi.org/10.1787/888934015106

Figure 3.17. **Type I and II diabetes prevalence among adults, 2017 (or nearest year)**



Source: IDF Diabetes Atlas, 8th Edition, 2017.

StatLink https://doi.org/10.1787/888934015125

Infant health

Inadequate living conditions, extreme poverty and socioeconomic factors affect the health of mothers and newborns. However, effective health systems can greatly limit the number of infant deaths, particularly by addressing life-threatening issues during the neonatal period. Around two-thirds of deaths during the first year of life occur before an infant reaches 28 days (neonatal mortality), primarily from congenital anomalies, prematurity and other conditions arising during pregnancy. For deaths beyond these first critical weeks (post-neonatal mortality), there tends to be a greater range of causes – the most common being Sudden Infant Death Syndrome (SIDS), birth defects, infections and accidents.

Infant mortality rates are low in most OECD countries, at less than five deaths per 1 000 live births in all countries except Mexico, Turkey and Chile (Figure 3.18). Within OECD countries, though, infant mortality rates are often higher among indigenous populations and other vulnerable groups – as observed in Australia, Canada, New Zealand and the United States (Smylie et al., 2010[1]). In partner countries, infant mortality remains above 20 deaths per 1 000 live births in India, South Africa and Indonesia, and above ten deaths in Colombia and Brazil. Infant mortality rates have fallen in all OECD and partner countries since 2000, with reductions generally largest in countries with historically the highest rates.

Despite this progress in reducing infant deaths, the increasing numbers of low birthweight infants are a concern in some OECD countries. On average, one in 15 babies born in OECD countries (6.5% of all births) weighed less than 2 500 grammes at birth in 2017 (Figure 3.19). Low birthweight infants have a greater risk of poor health or death, require a longer period of hospitalisation after birth, and are more likely to develop significant disabilities later in life. Risk factors for low birthweight include maternal smoking, alcohol consumption and poor nutrition during pregnancy, low body mass index, lower socio-economic status, having had in-vitro fertilisation treatment and multiple births, and a higher maternal age. The increased use of delivery management techniques such as induction of labour and caesarean delivery, which have contributed to increased survival rates of low birthweight infants, may also explain the rise in their numbers.

Japan, Greece and Portugal have the greatest share of low birthweight infants among OECD countries. There are fewer low birthweight infants in the Nordic (Iceland, Finland, Sweden, Norway, Denmark) and Baltic (Estonia, Latvia, Lithuania) countries. In 23 of the 36 OECD countries, the proportion of low birthweight infants has increased since 2000, most markedly in Korea. Among partner countries, Indonesia and Colombia have a high share.

Definition and comparability

The infant mortality rate is the number of deaths of children under one year of age per 1 000 live births. Some of the international variation in infant mortality rates may be due to variations in registering practices for very premature infants. While some countries register all live births including very small babies with low odds of survival, several countries apply a minimum threshold of a gestation period of 22 weeks (or a birth weight threshold of 500 grammes) for babies to be registered as live births (Euro-Peristat, 2018[2]). To remove this data comparability limitation, data presented in this section are based on a minimum threshold of 22 weeks' gestation period (or 500 g birth weight) for a majority of OECD countries that have provided these data. However, the data for ten countries (Australia, Canada, Greece, Ireland, Italy, Lithuania, Luxembourg, Mexico, Norway and Portugal) continue to be based on all registered live births (i.e. with no minimum threshold of gestation period or birthweight), resulting in potential over-estimation.

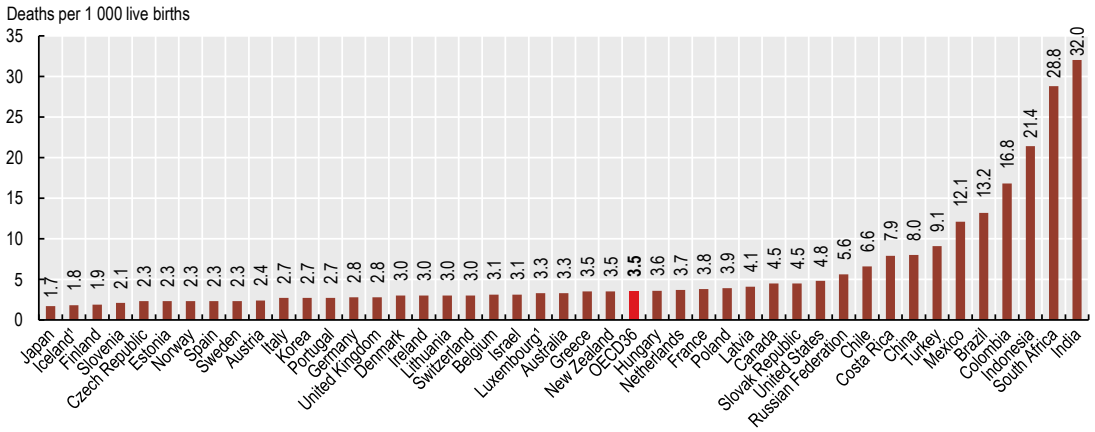
Low birth weight is defined by WHO as the weight of an infant at birth of less than 2 500 g (5.5 pounds) irrespective of the gestational age. This threshold is based on epidemiological observations regarding the increased risk of death to the infant. Despite the widespread use of this 2 500 g limit for low birth weight, physiological variations in size occur across different countries and population groups, and these need to be taken into account when interpreting differences (Euro-Peristat, 2018[2]). The number of low weight births is expressed as a percentage of total live births.

References

[2] Euro-Peristat (2018), *European Perinatal Health Report: Core indicators of the health and care of pregnant women and babies in Europe in 2015*.

[1] Smylie, J. et al. (2010), "Indigenous birth outcomes in Australia, Canada, New Zealand and the United States – an overview", *Open Womens Health*, Vol. 4, pp. 7-17.

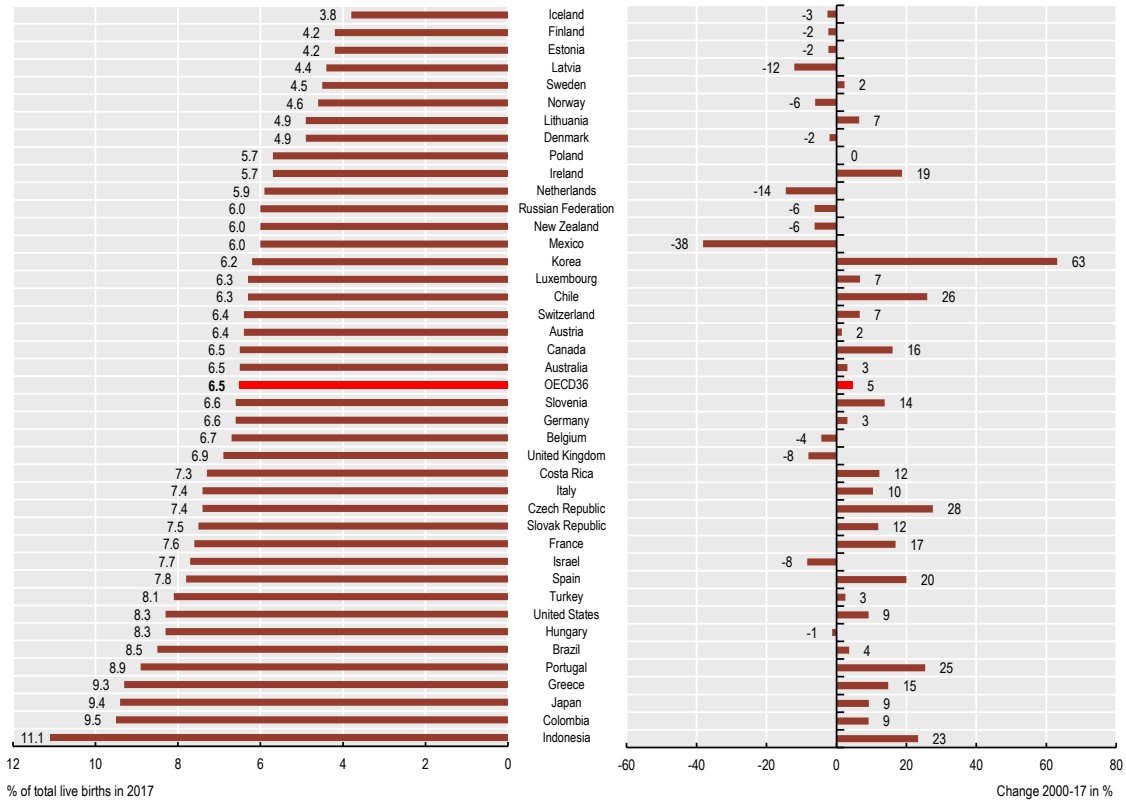
Figure 3.18. **Infant mortality, 2017 (or nearest year)**



1. Three-year average (2015-17).
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015144

Figure 3.19. **Low birthweight infants, 2017 and change 2000-17 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015163

Mental health

Good mental health is vital for people to be able to lead healthy, productive lives, but an estimated one in two people experience a mental health problem in their lifetime (OECD, 2015[1]). When people are living with a mental health problem it can have a significant impact on their daily life, contributing to worse educational outcomes, higher rates of unemployment, and poorer physical health. Figure 3.22 shows the impact of peoples' health on their daily activities and ability to work; people who reported a mental health problem were significantly more likely to say that their health had a negative impact on their daily life. In Norway and France, more than 50% of respondents who had been told by a doctor that they had a mental health problem felt that their ability to work or daily activities were limited. More can be done to help people participate in activities that matter to them, even if they have a mental health problem, including promoting timely access to treatment and integrating mental health and employment services.

Without effective treatment or support, mental health problems can have a devastating effect on people's lives, and can even lead to death by suicide. While there are complex social and cultural reasons affecting suicidal behaviours, suffering from a mental health problem also increases the risk of dying from suicide (OECD/EU, 2018[2]). A higher suicide rate also contributes to a significantly higher rate of overall mortality for people with serious mental disorders, as discussed in Chapter 6. In 2017, there were 11.2 deaths by suicide per 100 000 population in OECD countries. Figure 3.20 shows that suicide rates were lowest in Turkey and Greece, where there were fewer than five deaths by suicide per 100 000 population in 2017. Korea and Lithuania had the highest suicide rate, with 24.6 and 24.4 deaths per 100 000 population, respectively. The rate of suicide was higher among men than women in all countries; in Lithuania, the suicide rate among men was more than five times higher than that for women.

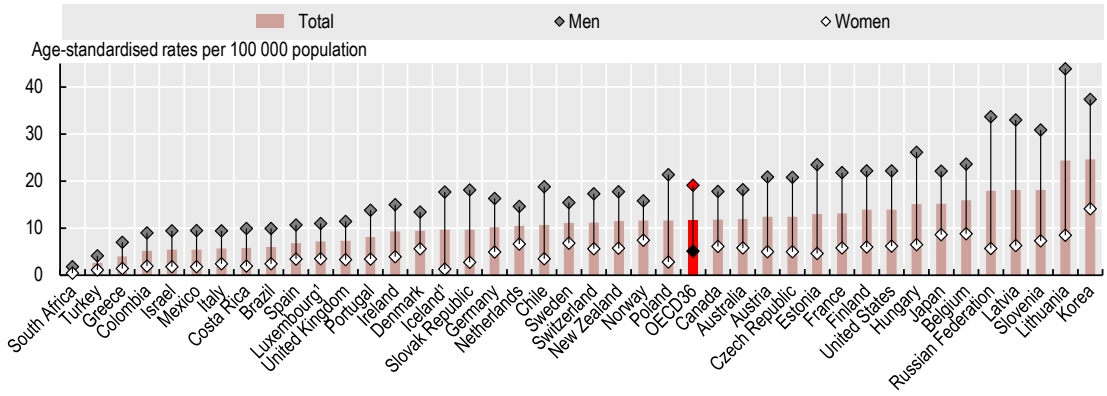
Suicide rates have decreased in almost all OECD countries, falling by more than 30% between 1990 and 2017. In some countries, the declines have been significant, including in Finland, Switzerland and Slovenia, where suicide rates have fallen by more than 40%. Other countries such as Chile and Korea saw suicide peaks in the past decade followed by a decline in more recent years (Figure 3.21). In Switzerland, suicide has fallen by 48% since 1990; rates of 'assisted suicide' are rising, mainly in older people, but since 2009 assisted suicides have been excluded from overall suicide data, explaining the sharp decline the year the reporting changed. Switzerland has taken steps to reduce deaths by suicide, such as introducing a suicide prevention action plan in 2016 that included providing fast access to mental health support, seeking to reduce stigma around suicide, and raising awareness of suicide risks. Finland, where a particularly significant decline in suicide was seen in the early 1990s, has recently moved away from stand-alone suicide prevention plans and includes suicide reduction in broader mental health strategies, focusing on improving treatment for mental illness, and implementing a network for coordinating suicide prevention (OECD/EU, 2018[2]).

Definition and comparability

The registration of suicide is a complex procedure, affected by factors such as how intent is ascertained, who is responsible for completing the death certificate, and cultural dimensions including stigma. Caution is therefore needed when comparing rates between countries. Age-standardised mortality rates are based on numbers of deaths divided by the size of the corresponding population. The source is the WHO Mortality Database; suicides are classified under ICD-10 codes X60-X84, Y870.

Figure 3.22 uses data from the Commonwealth Fund 2016 International Health Policy Survey of Adults. It is possible to identify adults who responded "yes" to "Have you ever been told by a doctor that you have depression, anxiety or other mental health problems" and track their responses to other survey questions. This figure shows the rate of responses to the question "Does your health keep you from working full-time or limit your ability to do housework or other daily activities?". Respondents who answered "yes" to this question are identified as "with a mental health problem" and those who responded "no" as "no mental health problem". Respondents identified as "no mental health problem" may have another health problem. The data have shortcomings, including some low response rates and a limited sample size (see also Box 2.4 in Chapter 2). Interpretation of questions may be different across countries; further, it is not known whether respondents were living with a mental health problem at the time of responding, and self-reported prevalence can be affected by stigma around mental health problems. The rate at which respondents reported having been told they had a mental health problem was fairly consistent with national prevalence estimates except for France, where respondents were significantly less likely to report a mental health problem than other national estimates suggest.

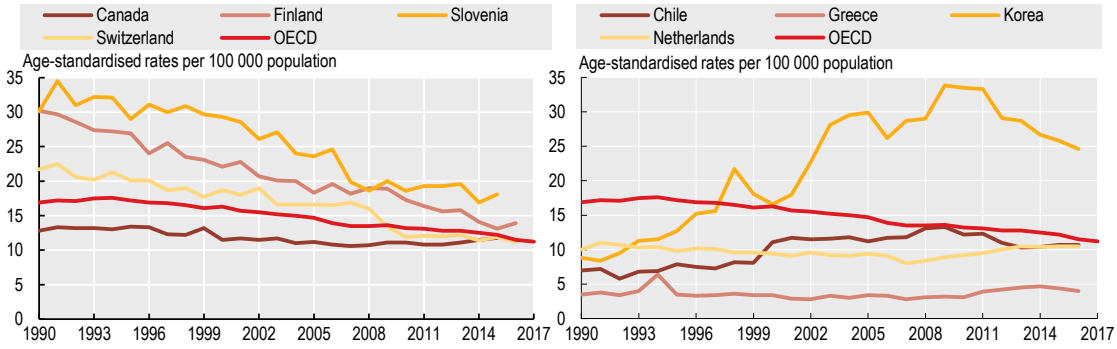
Figure 3.20. **Suicide rates, 2017 (or nearest year)**



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

StatLink https://doi.org/10.1787/888934015182

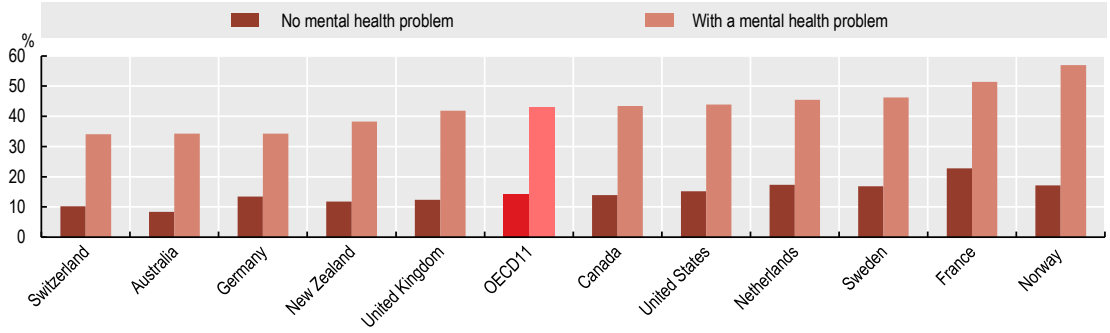
Figure 3.21. **Trends in suicide, selected OECD countries, 1990-2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015201

Figure 3.22. **People whose health kept them from working full-time or limited their daily activities, 2016**



Source: Commonwealth Fund International Health Policy Survey 2016.

StatLink https://doi.org/10.1787/888934015220

Self-rated health

How individuals assess their own health provides a holistic overview of both physical and mental health. By adding such a perspective on quality of life, it complements life expectancy and mortality indicators that only measure survival. Further, despite its subjective nature, self-rated health has proved to be a good predictor of future health care needs and mortality (Palladino et al., 2016[1]).

Most OECD countries conduct regular health surveys that include asking respondents how, in general, they would rate their health. For international comparisons, socio-cultural differences across countries may complicate cross-country comparisons of self-assessed health. Differences in the formulation of survey questions, notably in the survey scale, can also affect comparability of responses. Finally, since older people generally report poorer health and more chronic diseases than younger people do, countries with a larger proportion of elderly people are likely to have a lower proportion of people reporting that they are in good health.

With these limitations in mind, almost 9% of adults consider themselves to be in poor health, on average across OECD countries (Figure 3.23). This ranges from over 15% in Korea, Lithuania, Latvia and Portugal to under 4% in New Zealand, the United States, Canada, Ireland and Australia. However, the response categories used in OECD countries outside Europe and Asia are asymmetrical on the positive side, which introduces a comparative bias to a more positive self-assessment of health (see the box on "Definition and comparability"). Korea, Japan and Portugal stand out as countries with high life expectancy, but relatively poor self-rated health.

People with lower incomes are generally less positive about their health than people on higher incomes, in all OECD countries (Figure 3.24). Almost 80% of adults in the highest income quintile rate their health as good or very good, compared with just under 60% of adults in the lowest income quintile, on average across the OECD. Socio-economic disparities are particularly marked in Latvia, Estonia, the Czech Republic and Lithuania, with a percentage point gap of 40 or more between adults on low and high incomes. Differences in smoking, harmful alcohol use and other risk factors are likely to explain much of this disparity in these countries. Socio-economic disparities are relatively low in New Zealand, Greece, Italy, Australia and France, at less than 10 percentage points.

Self-rated health tends to decline with age. In many countries, there is a particularly marked decline in how people rate their health when they reach their mid-forties, with a further decline after reaching retirement age. Men are also more likely than women to rate their health as good.

Definition and comparability

Self-rated health reflects an individual's overall perception of his or her health. Survey respondents are typically asked a question such as: "How is your health in general?". Caution is required in making cross-country comparisons of self-rated health for at least three reasons. First, self-rated health is subjective, and responses may be systematically different across and within countries because of socio-cultural differences. Second, as self-rated health generally worsens with age, countries with a greater share of older people are likely to have fewer people reporting that they are in good health. Third, there are variations in the question and answer categories used in survey questions across countries. In particular, the response scale used in the United States, Canada, New Zealand, Australia and Chile is asymmetrical (skewed on the positive side), including the response categories: "excellent, very good, good, fair, poor". In most other OECD countries, the response scale is symmetrical, with response categories: "very good, good, fair, poor, very poor". This difference in response categories may introduce a comparative bias to a more positive self-assessment of health in those countries that use an asymmetrical scale.

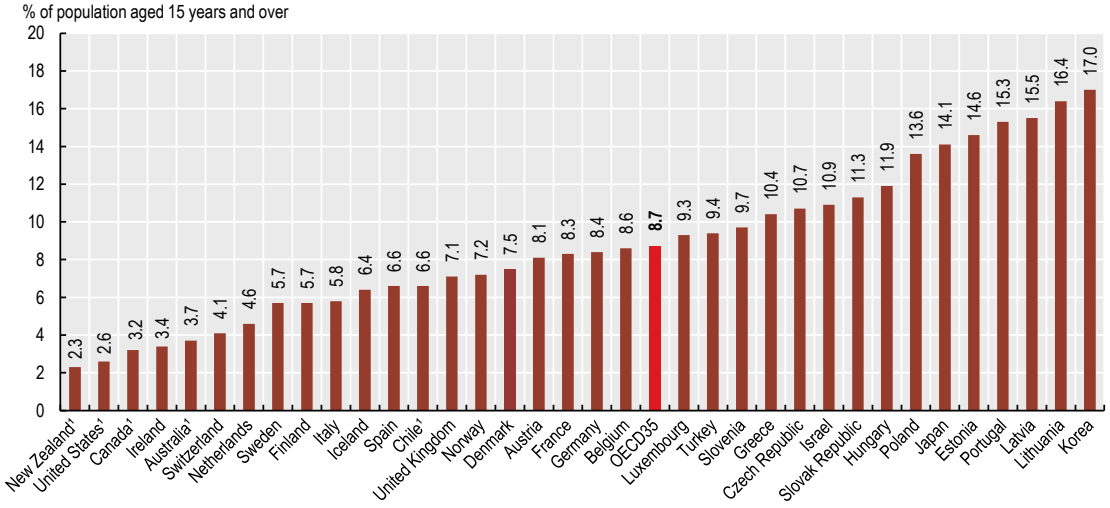
Self-rated health by income level is reported for the first quintile (lowest 20% of income group) and the fifth quintile (highest 20%). Depending on the surveys, the income may relate to either the individual or the household (in which case the income is equivalised to take into account the number of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

References

[2] Lumsdaine, R. and A. Exterkate (2013), "How survey design affects self-assessed health responses in the survey of health, ageing and retirement in Europe", *European Economic Review*, Vol. 63, pp. 299-307.

[1] Palladino, R. et al. (2016), "Associations between multimorbidity, healthcare utilisation and health status: evidence from 16 European countries", *Age and Ageing*, Vol. 45, pp. 431-435.

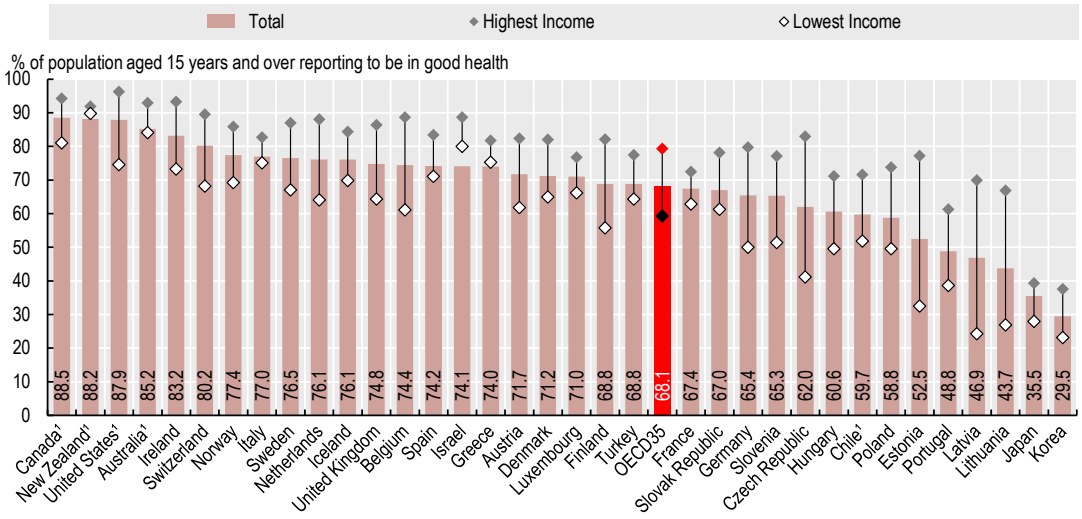
Figure 3.23. **Adults rating their own health as bad or very bad, 2017 (or nearest year)**



1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in a bias towards a more positive self-assessment of health.
Source: OECD Health Statistics 2019 (EU-SILC for European countries).

StatLink https://doi.org/10.1787/888934015239

Figure 3.24. **Adults rating their own health as good or very good, by income quintile, 2017 (or nearest year)**



1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in a bias towards a more positive self-assessment of health.
Source: OECD Health Statistics 2019 (EU-SILC for European countries).

StatLink https://doi.org/10.1787/888934015258

4. RISK FACTORS FOR HEALTH

Smoking among adults

Alcohol consumption among adults

Opioids use

Diet and physical activity among adults

Overweight and obesity among adults

Overweight and obesity among children

Air pollution and extreme temperatures

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.

Smoking among adults

Smoking is a leading cause of multiple diseases, including cancers, heart attacks and stroke, and respiratory diseases such as chronic obstructive pulmonary disease. Smoking among pregnant woman increases the risk of low birth weight and premature delivery. The WHO estimates that tobacco smoking kills 7 million people in the world every year, of which more than 1.2 million deaths are due to second-hand smoke and 65 000 are children (WHO, 2017[1]). Of these deaths, just over half took place in four countries – China, India, the United States, and the Russian Federation. Over recent decades, smoking caused the largest share of overall years of healthy life lost in 15 OECD countries, and ranked second in further 16 OECD countries (Forouzanfar et al., 2016[2])

Across OECD countries, 18% of adults smoke tobacco daily (Figure 4.1). Smoking rates range from over 25% in Greece, Turkey, Hungary and France to below 10% in Mexico and Iceland. In key partner countries, rates are very high in Indonesia (40%) and the Russian Federation (30%); and 10% or less in Costa Rica. Men smoke more than women in all countries except Iceland – on average across the OECD, 23% of men smoke daily compared with 14% among women. The gender gap in smoking rates is comparatively high in Korea and Turkey, as well as in Indonesia, China and the Russian Federation. Among men, rates are highest in Indonesia (76%), the Russian Federation (50%), China (48%) and Turkey (40%); and below 10% in Costa Rica and Iceland. For women, rates are the highest in Austria, Greece, Chile, France and Hungary (over 20%). Less than 5% of women smoke in China, India, Costa Rica, Korea, Mexico and Indonesia.

Daily smoking rates have decreased in most OECD countries over the last decade, from an average of 23% in 2007 to 18% in 2017 (Figure 4.2). In the Slovak Republic and Austria, though, smoking rates have risen slightly. Smoking rates also increased in Indonesia. Greece reduced smoking rates the most, followed by Estonia, Iceland and Norway.

People with a lower education level are more likely to smoke in all countries except Greece, with an average gap of 8 percentage points in 2017 (Figure 4.3). Education gaps are largest in Estonia and Hungary (about 16 percentage points), and relatively small in Portugal, Bulgaria, Lithuania, and Turkey (less than 2 percentage points).

Raising taxes on tobacco is one of the most effective ways to reduce tobacco use. Tobacco prices in most OECD countries contain more than 50% of taxes. Health warnings on packages, bans on promotional and misleading information, and restricted branding are other key tobacco control policies. Awareness raising and support for smokers, including nicotine replacement treatment and smoking cessation advice, also help reduce smoking.

Definition and comparability

The proportion of daily smokers is defined as the percentage of the population aged 15 years and over who report smoking tobacco every day. Other forms of smokeless tobacco products, such as snuff in Sweden, are not taken into account. This indicator is more representative of the smoking population than the average number of cigarettes smoked per day. Most countries report data for the population aged 15 and older, but there are some exceptions as highlighted in the data source of the OECD Health Statistics database.

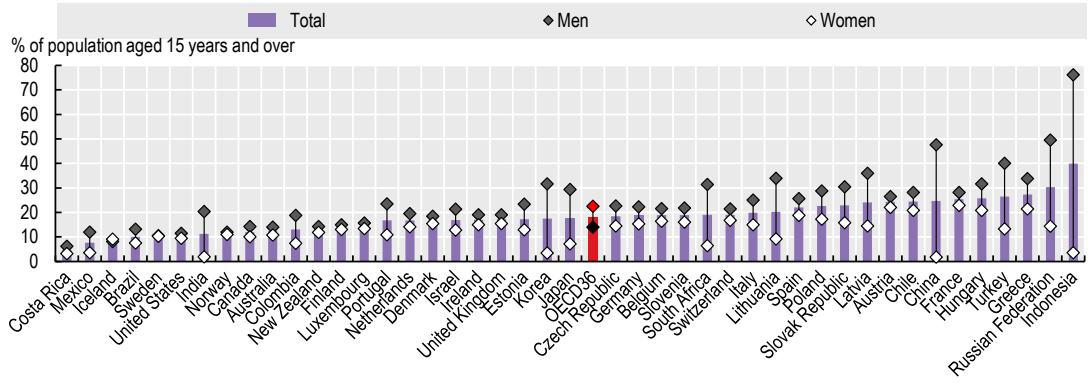
Data for differences in daily smoking by education level comes from the European Health Interview Survey in 2014 in EU countries. The United States and Canada reported the data respectively from the Medical Expenditure Panel Survey (MEPS) in 2016 and Canadian Community Health Survey (CCHS) 2015-2016. The latter reflects only daily cigarette smoking.

References

[2] Forouzanfar, M. et al. (2016), "Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015", *The Lancet*, Vol. 388/10053, pp. 1659-1724, *http://dx.doi.org/10.1016/s0140-6736(16)31679-8*.

[1] WHO (2017), *WHO report on the global tobacco epidemic, 2017*.

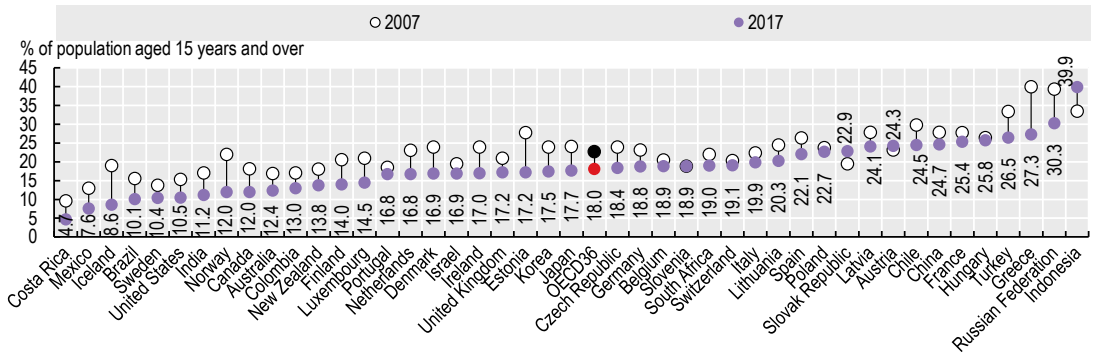
Figure 4.1. **Adult population smoking daily by sex, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015277

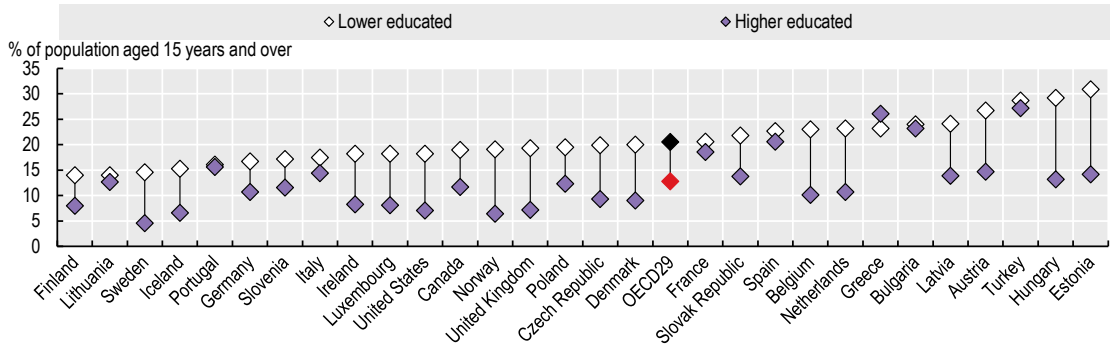
Figure 4.2. **Adult population smoking daily, 2007 and 2017 (or nearest years)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015296

Figure 4.3. **Difference in daily smoking between highest and lowest education level, 2016 (or nearest year)**



Source: EHIS 2014 for Europe; MEPS 2016 for the United States; and CCHS 2015-2016 for Canada.

StatLink https://doi.org/10.1787/888934015315

Alcohol consumption among adults

Alcohol use is a leading cause of death and disability worldwide, particularly in those of working age. It accounted for an estimated 7% of male and 2% of female deaths worldwide in 2016 (Griswold et al., 2018[1]). High alcohol intake is a major risk factor for heart diseases and stroke, liver cirrhosis and certain cancers, but even low and moderate alcohol consumption increases the long-term risk of these diseases. Alcohol also contributes to more accidents and injuries, violence, homicide, suicide and mental health disorders than any other psychoactive substance, particularly among young people.

Measured through sales data, overall alcohol consumption averaged 8.9 litres per person across OECD countries in 2017, down from 10.2 litres in 2007 (Figure 4.4). Lithuania reported the highest consumption (12.3 litres), followed by Austria, France, the Czech Republic, Luxembourg, Ireland, Latvia and Hungary, all with over 11 litres per person. Turkey, Israel and Mexico have comparatively low consumption levels (under 5 litres per person). Among key partners, consumption was relatively high in the Russian Federation (11.1 litres) and low in Indonesia, India, Costa Rica and Colombia (less than 5 litres). Average consumption fell in 27 OECD countries between 2007 and 2017, with the largest reductions in Israel, Estonia, Greece and Denmark (by 3 litres or more). Consumption also fell markedly in the Russian Federation (by 7 litres). However, alcohol consumption increased by more than 1 litre per person in China and India, and by over 0.5 litres per person in Chile.

While overall consumption per capita helps assess long-term trends, it does not identify sub-populations at risk from harmful drinking patterns. Heavy drinking and alcohol dependence account for an important share of the burden of disease. On average across OECD countries, 3.7% of adults were alcohol dependent in 2016 (Figure 4.5). In all countries, men are more likely to be alcohol dependent, with 6% of men and 1.6% of women alcohol dependent on average. Dependence is most common in Latvia, Hungary, and Russian Federation (more than 9% of adults). In these three counties, gender gaps are also high, with the share of alcohol dependent men about five times higher than for women.

The share of dependent drinkers does not always correlate with overall alcohol consumption levels, reflecting differences in consumption patterns and diagnosis of alcohol dependence. France, for instance, had the third highest alcohol consumption in 2017, yet rates of alcohol dependence below the OECD average. Conversely, the United States has a high share of alcohol dependence in 2016 (7.7%), but recorded consumption is at the OECD average.

Policies addressing harmful alcohol use include broad-based strategies and ones that target heavy drinkers. All OECD countries apply taxes to alcoholic beverages, but the level of taxes differs greatly. In addition, some countries have implemented new forms of pricing policies, such as minimum pricing of one alcohol unit in Scotland. Advertising regulations exist in most OECD countries, but law enforcement and the forms of media included in these regulations (e.g. printed newspapers, billboards, the internet and TV) varies. In Norway, Lithuania and Sweden, for instance, there are complete bans on TV adverts, including on social media, while other countries set partial limitations. Controls on the physical availability, drinking age and hours of sale; and drink-driving rules are other commonly used policies (OECD, 2015[1]).

Definition and comparability

Recorded alcohol consumption is defined as annual sales of pure alcohol in litres per person aged 15 years and over (with some exceptions highlighted in the data source of the OECD Health Statistics database). The methodology to convert alcohol drinks to pure alcohol may differ across countries. Official statistics do not include unrecorded alcohol consumption, such as home production. In some countries (e.g. Luxembourg), national sales do not accurately reflect actual consumption by residents, since purchases by non-residents may create a significant gap between national sales and consumption. Alcohol consumption in Luxembourg is thus estimated as the mean of alcohol consumption in France and Germany.

Alcohol dependence is coded as F10.2 in ICD-10 among adults aged over 15 years old during a given calendar year. The numerator is the number of adults between 18 and 65 years with a diagnosis of F10.2 during a calendar year. The denominator is the mid-year resident population over 15 years during the same calendar year. The WHO also reports alcohol use disorders among people aged 15 years and over as a prevalence over 12 months, which includes both alcohol dependence and harmful use of alcohol coded as F10.1 in ICD-10.

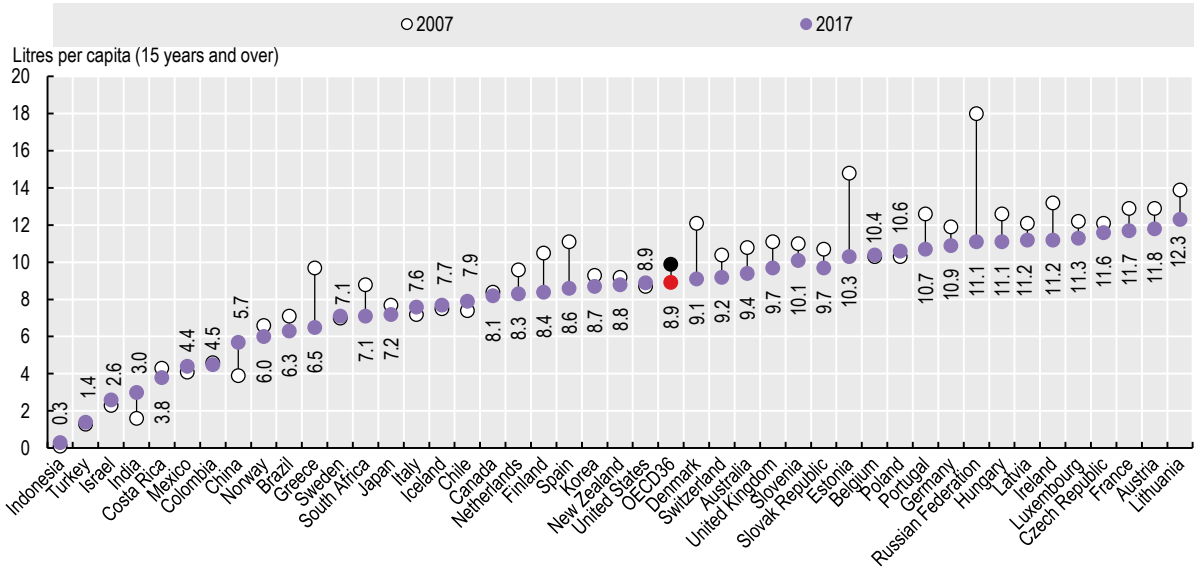
References

[2] Griswold, M. et al. (2018), "Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016", *The Lancet*, Vol. 392/10152, pp. 1015-1035, *http://dx.doi.org/10.1016/S0140-6736(18)31310-2*.

[1] OECD (2015), *Tackling Harmful Alcohol Use: Economics and Public Health Policy*, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264181069-en*.

[3] WHO (2018), *Global status report on alcohol and health*.

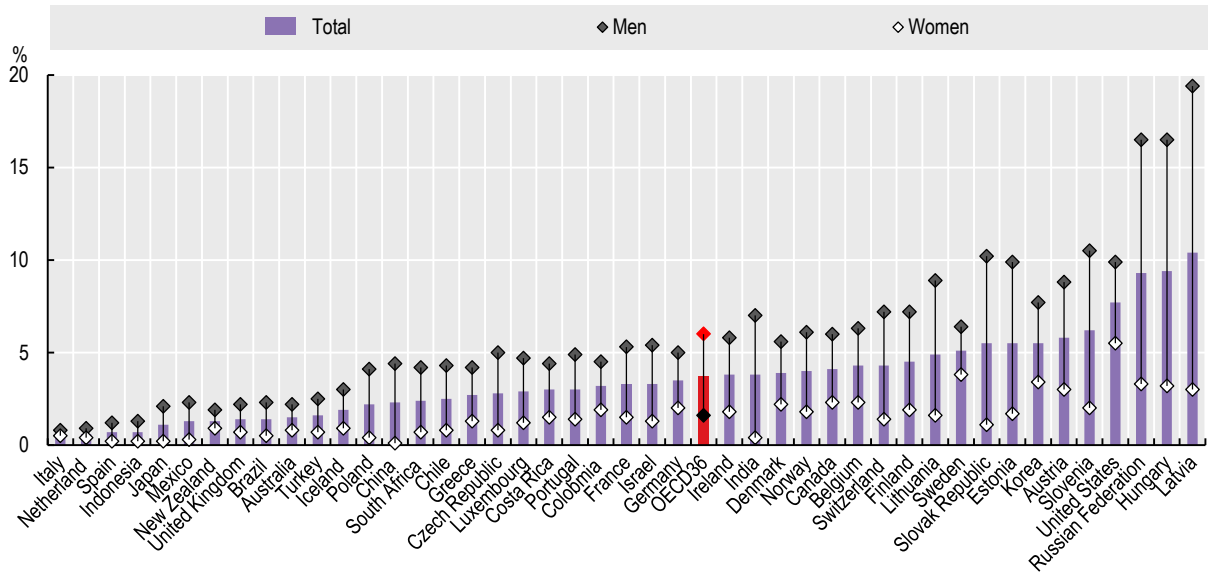
Figure 4.4. **Recorded alcohol consumption among adults, 2007 and 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015334

Figure 4.5. **Share of dependent drinkers, by sex, 2016**



Source: Global Status Report on Alcohol and Health, WHO 2018.

StatLink https://doi.org/10.1787/888934015353

Opioids use

Opioids are a narcotic pain medication that have become the cornerstone therapy for treatment of moderate to severe pain in many high-income countries. In parallel, illicit opioid use for nonmedical purposes has created illegal, increasingly commercialised global markets. Canada and the United States have experienced an opioid crisis in recent years, fuelled by growth in the consumption of synthetic opioids such as fentanyl and carfentanil. Problematic opioid use is also spreading in Australia and some European countries, due to growing prescription rates (see indicator on "Safe primary care – prescribing" in Chapter 6) and the development of a dynamic illegal drug supply market (OECD, 2019[1]).

For prescription opioids, whilst there is insufficient access in many low- and middle-income countries, the reality in OECD countries is quite different, where the availability of analgesic opioids has been steadily growing. The United States has the highest availability of analgesic opioids among OECD countries, followed by Germany and Canada, while Mexico, Chile and Colombia show the lowest numbers. The sharpest increases occurred in the 2000s: between 2002-04 and 2005-07 analgesic opioids availability grew on average by 59% and over the decade by almost 110%. More recently, the growth rate dropped to 5.4% on average between 2011-13 and 2014-16. In absolute terms, availability per person increased the most in Israel, the United Kingdom, Germany; the sharpest falls were in the United States, Denmark and Luxembourg (Figure 4.6).

Opioid-related deaths is a key indicator that reflects the impact of problematic use of the drug, both of legally prescribed drugs and illegal drugs (e.g. heroin). On average across 25 OECD countries for which data are available, there were 26 opioid-related deaths per million inhabitants in 2016 (Figure 4.7). However, death rates were over five times higher in the United States (131 opioid-related deaths), followed closely by Canada (120). Opioid-related deaths have increased by about 20% since 2011, with large increases in the United States, Sweden, Canada, England and Wales, and Lithuania. In the United States, almost 400 000 people died from an opioid overdose between 1999 and 2017, with the opioid crisis contributing to the first decline in life expectancy observed in over half a century.

Countries are implementing several strategies to address the problematic use of opioids, with comprehensive approaches across different sectors, covering health, social services, law enforcement, data systems and research. Countries have aimed to improve opioid prescribing through evidence-based clinical guidelines, training, surveillance of opioid prescriptions, and regulation of marketing and financial relationships with opioid manufacturers. Educational materials and awareness interventions have been developed for both at-risk patients and the general public. For patients with opioid use disorder, there has been increased coverage for long-term medication-assisted therapy combined with specialised services for infectious diseases and psychosocial interventions. Many countries have also implemented harm minimisation interventions such as overdose reversal medications, needle and syringe programmes and medically supervised consumptions centres. Research initiatives to boost innovation in pain relief and opioid use disorders treatments have also been launched (OECD, 2019[1]).

Definition and comparability

Availability of analgesic opioid is defined as amounts that each country's competent national authority estimates are needed and used annually, including reporting of medicines destroyed, losses during manufacture, etc. This information is verified by the International Narcotics Control Board using data from export and import notifications. The S-DDD is a technical unit of measurement. It is not a recommended prescription dose. It recognises that no internationally agreed standard doses exist for opioid medicines and therefore provides a rough measure to rank opioid use of countries. Levels of use, expressed in S-DDD per million inhabitants per day, are calculated with the following formula: annual use divided by 365 days, divided by the population in millions of the country or territory during the year, divided by the defined daily dose (Berterame et al., 2016[2]). Analgesic opioids include codeine, dextropropoxyphene, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, morphine, ketobemidone, oxycodone, pethidine, tilidine and trimeperidine. It does not include illicit opioids. Those data do not directly reflect the consumption of analgesic opioids in countries, but the general availability for different purposes, of which the largest component is for medical use.

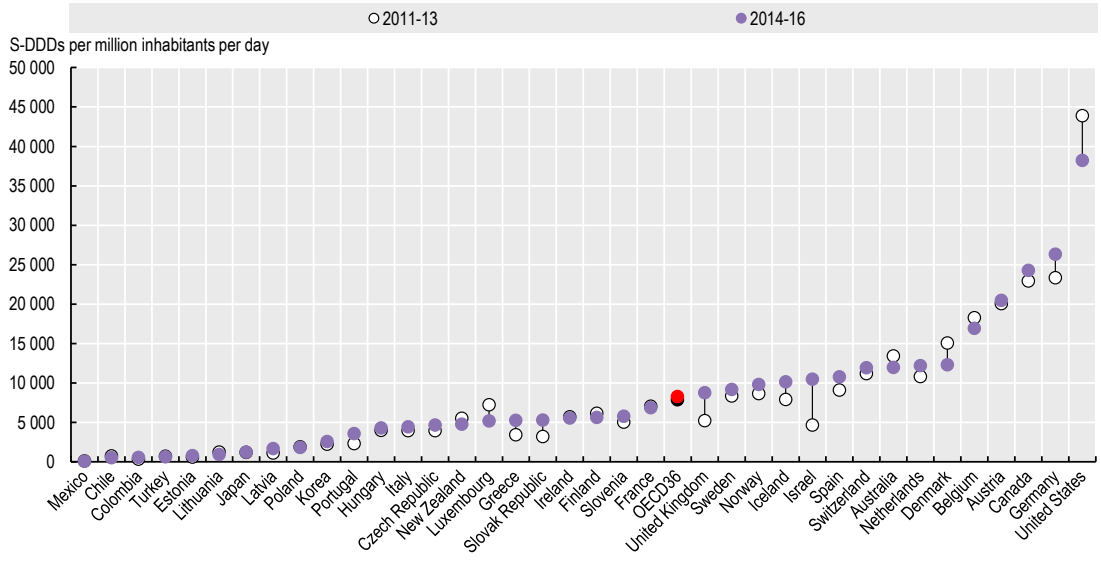
Opioid-related deaths for European countries are collected and shared with the OECD by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). This was complemented with data contributed directly from countries to the OECD using an adapted version of the EMCDDA's data questionnaire.

References

[2] Berterame, S. et al. (2016), "Use of and barriers to access to opioid analgesics: a worldwide, regional, and national study", *The Lancet*, Vol. 387/10028, pp. 1644-1656, *http://dx.doi.org/10.1016/S0140-6736(16)00161-6*.

[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*.

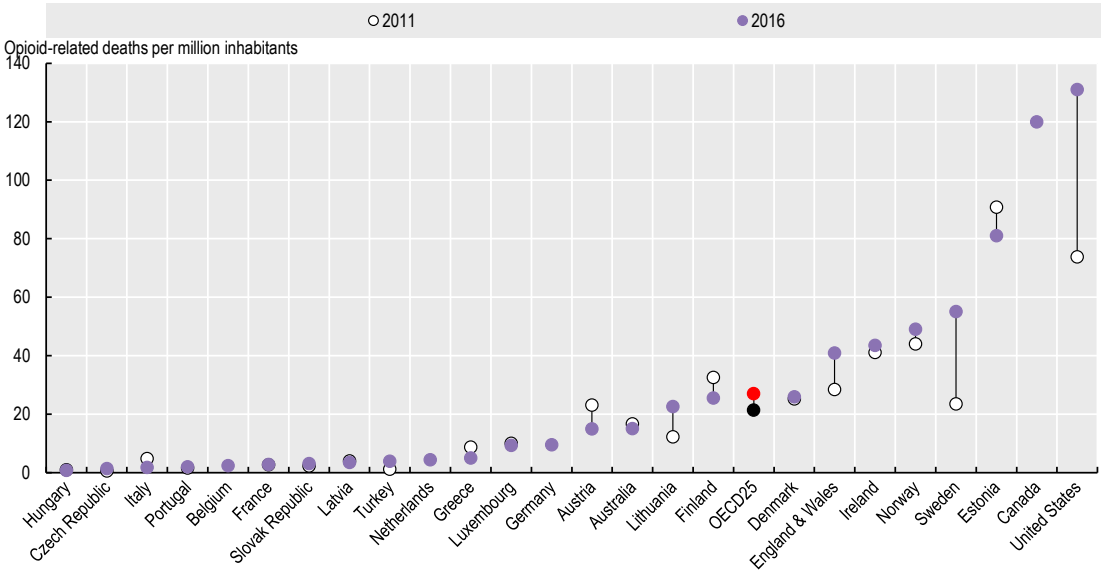
Figure 4.6. **Availability of analgesic opioids, 2011-13 and 2014-16**



S-DDD: Defined daily doses for statistical purposes.
Source: INCB 2018.

StatLink https://doi.org/10.1787/888934015372

Figure 4.7. **Opioid-related deaths, 2011 and 2016 (or nearest year)**



Note: Canada's data corresponds to 2018.
Source: EMCDDA for European countries and country responses to OECD opioid data questionnaire 2018.

StatLink https://doi.org/10.1787/888934015391

Diet and physical activity among adults

A healthy diet is associated with improved health outcomes. Adults who follow a diet rich in fruits and vegetables and low in fat, sugars and salt/sodium are at a lesser risk of developing one or more cardiovascular diseases and certain types of cancer (Graf and Cecchini, 2017[1]). Healthy diet may also reduce the likelihood of being overweight or obese. In 2017, inadequate fruit and vegetable consumption led to an estimated 3.9 million deaths worldwide (Global Burden of Disease Collaborative Network, 2018[2]).

On average across OECD countries, over half (57%) of all adults consumed at least one piece of fruit per day in 2017 (Figure 4.8). Values for this metric are highest in Australia, Spain, New Zealand and Italy (greater than 75%). Conversely, Chile, Finland and Latvia recorded values below 40%. In all countries except Spain, women are more likely to consume fruit daily. This gender gap in fruit consumption was largest in Finland and Austria, with over a 20 percentage point difference.

The share of populations consuming vegetables daily was similar: 60% of adults, on average across the OECD. Countries with the highest rate of vegetable consumption are Australia, Korea, New Zealand and the United States, all of which recorded values greater than 90% (Figure 4.9). At the other end of the spectrum, this figure fell below 35% in Germany and the Netherlands. As with fruit consumption, women are more likely than men to eat at least one portion of vegetables per day (65% of women v 54% of men, on average). Daily vegetable consumption was higher among women than men in all countries other than Korea and the United States (where gender differences were minimal).

Physical activity is also important for leading a healthy lifestyle. Regular physical activity is associated with significant benefits such as improved bone and functional health, and reduced risk of various non-communicable diseases and depression (Warburton and Bredin, 2017[3]). Advances in technology in areas such as transport, communication and entertainment have contributed to declines in physical activity (Graf and Cecchini, 2017[1]).

About two in three adults (66%) meet the recommended guidelines for moderate physical activity, on average across 23 OECD countries (Figure 4.10). Adults are most likely to be sufficiently active in Sweden, Iceland, Norway and Denmark (over 75% of adults). Conversely, less than half of the adult population in Italy and Spain engage in the recommended amount of moderate physical activity. Other than Denmark, men are more likely to be physically active than women in all 23 OECD countries with comparable data.

Definition and comparability

Fruit and vegetable consumption are defined as the proportion of adults who consume at least one fruit or vegetable per day, excluding juice and potatoes. Estimates for fruit and vegetable consumption are derived from national health surveys and are self-reported (with some differences in reporting periods, see country-specific notes in OECD.Stat on definitions, sources and methods for further details).

Data for Australia, Korea and New Zealand are derived from quantity-type questions. Values for these countries may therefore be overestimated. Most countries report data for the population aged 15 years and over, with some exceptions as highlighted in the data source of the OECD Health Statistics database.

The indicator of moderate physical activity is defined as completing at least 150 minutes of moderate physical activity per week. Estimates of moderate physical activity are based on self-reports from the European Health Interview Survey 2014, combining work-related physical activity with leisure-time physical activity (bicycling for transportation and sport). Walking for transportation is not included.

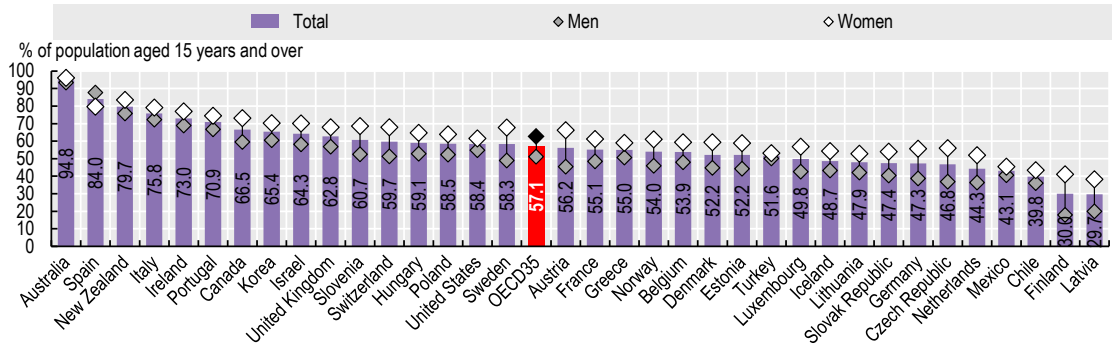
References

[2] Global Burden of Disease Collaborative Network (2018), *Global Burden of Disease Study 2017 (GBD 2017) Results*, Seattle, United States: Institute for Health Metrics and Evaluation (IHME).

[1] Graf, S. and M. Cecchini (2017), "Diet, physical activity and sedentary behaviours: Analysis of trends, inequalities and clustering in selected OECD countries", *OECD Health Working Papers No. 100*, OECD Publishing, Paris, *https://doi.org/10.1787/54464f80-en*.

[3] Warburton, D. and S. Bredin (2017), "Health benefits of physical activity", *Current Opinion in Cardiology*, Vol. 32/5, pp. 541-556, *http://dx.doi.org/10.1097/hco.0000000000000437*.

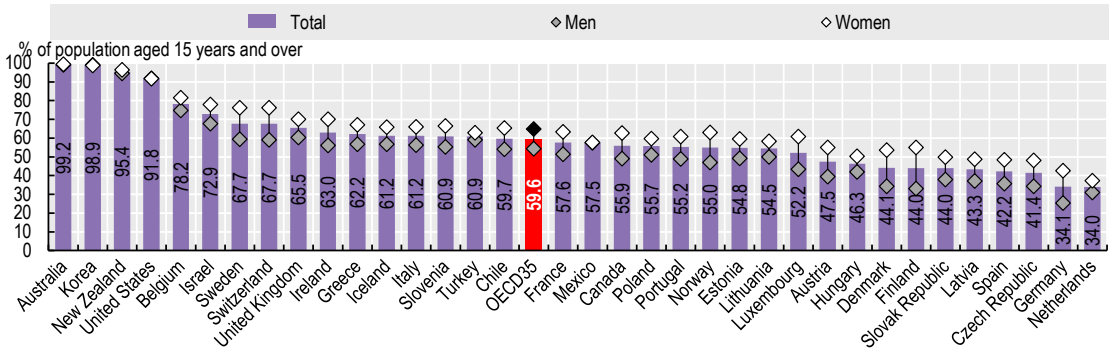
Figure 4.8. **Daily fruit consumption among adults by sex, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015410

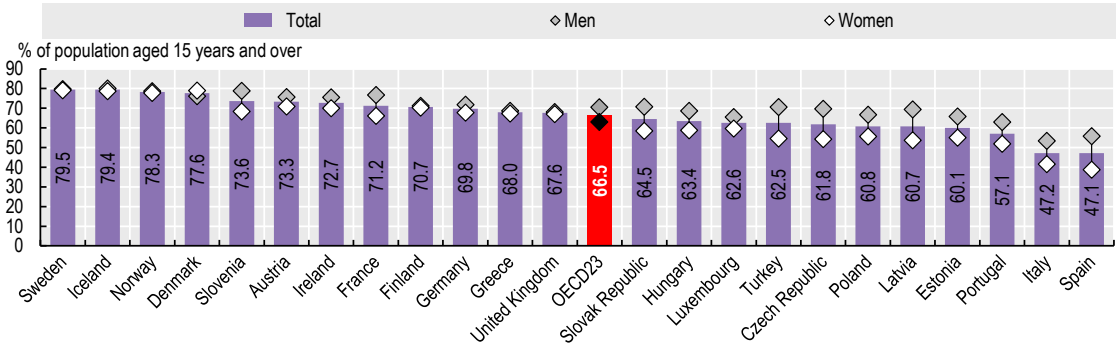
Figure 4.9. **Daily vegetable consumption amongst adults by sex, 2017 (or nearest year)**



Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015429

Figure 4.10. **Moderate weekly physical activity among adults by sex, 2014**



Source: Eurostat EHIS 2014.

StatLink https://doi.org/10.1787/888934015448

Overweight and obesity among adults

Being overweight, including pre-obesity and obesity, is a major risk factor for various non-communicable diseases including diabetes, cardiovascular diseases and certain cancers. High consumption of calories-dense food and increasingly sedentary lifestyles have contributed to growing global obesity rates. The rate of growth has been highest in early adulthood and has affected all population groups, in particular women and those with lower levels of education (Afshin et al., 2017[1]). High body mass index (BMI) has been estimated to cause 4.7 million deaths worldwide (Global Burden of Disease Collaborative Network, 2018[2])

Based on measured data, 58% of adults were overweight or obese in 2017 on average across 23 OECD countries with comparable data (Figure 4.11). For Chile, Mexico and the United States this figure exceeds 70%. Conversely, in Japan and Korea, less than 35% of adults were overweight or obese. The remaining 13 OECD countries include self-reported data, with rates ranging from 42% in Switzerland to 65% in Iceland. These estimates, though, are less reliable and typically lower than those based on measured data. For both measured and self-reported data, men are more likely than women to be overweight.

The proportion of overweight adults has been gradually increasing in most OECD countries since the early 2000s, including in countries where rates are relatively low (Figure 4.12). In Japan and Korea, this proportion has increased by 2.1 and 4.2 percentage points, respectively, between 2000 and 2017. In countries with relatively high rates of adults overweight, this figure ranged from 2.3 percentage points in Canada to 11.9 in Chile.

Adults with a low level of education are more likely to be overweight than those with a tertiary education level or above in all 27 OECD countries examined (Figure 4.13). The difference in the proportion of overweight adults by education level was greatest in Luxembourg, Spain and France, where the gap was greater than 15 percentage points.

OECD member countries have implemented a suite of regulatory and non-regulatory initiatives to reduce overweight population rates. Prominent examples include mass media campaigns to promote the benefits of healthy eating; promotion of nutritional education and skills; 'sin' taxes on energy-dense food and drink items to discourage consumption; food labelling to communicate nutritional value; and agreements with the food industry to improve the nutritional value of products. Policymakers are also exploring initiatives that address the social determinants of being overweight. For example, the *Healthy Food Financing Initiative* in the United States aims to improve access to healthy foods in underserved areas. Despite these efforts, the overweight epidemic has not been reversed, highlighting the issue's complexity (OECD, 2019[3]).

Definition and comparability

Overweight is defined as abnormal or excessive accumulation of fat, which presents a risk to health. The most frequently used measure is body mass index (BMI), which is a single number that evaluates an individual's weight in relation to height (weight/height^2, with weight in kilograms and height in metres). Based on WHO classifications, adults over age 18 with a BMI greater than or equal to 25 are defined as pre-obese, and those with a BMI greater than or equal to 30 as obese. Data come from national sources – in a few instances these may differ from data shown in the OECD 2019 report on obesity, which uses data from the WHO Global Health Observatory, with age-standardised estimates and other methodological differences. Overweight includes both pre-obesity and obesity. BMI measurements are the same for both genders and adults of all ages. Data for BMI can also be collected using self-reported estimates of height and weight. BMI estimates based on self-reported data are typically lower and less reliable than those based on measured data.

For Figure 4.13, the lowest level of education refers to people with less than a high-school diploma, while the highest refers to people with a university or other tertiary diploma.

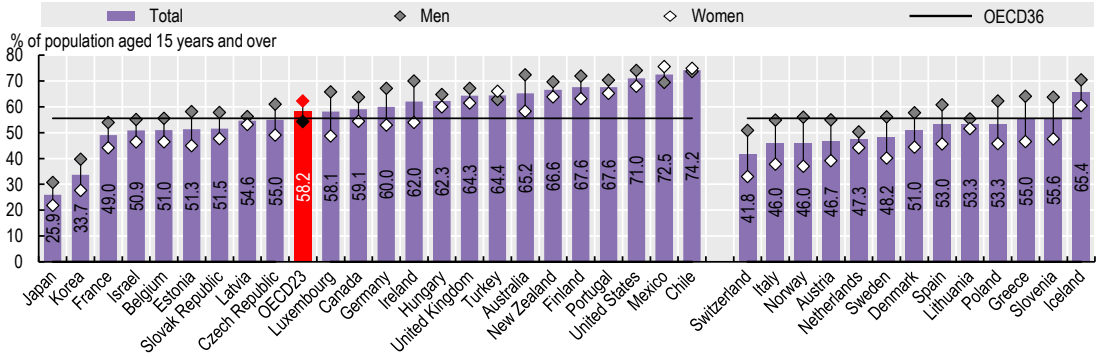
References

[1] Afshin, A. et al. (2017), "Health Effects of Overweight and Obesity in 195 Countries over 25 Years.", *The New England Journal of Medicine*, *http://dx.doi.org/10.1056/NEJMoa1614362*.

[2] Global Burden of Disease Collaborative Network (2018), *Global Burden of Disease Study 2017 (GBD 2017) Results*, Seattle, United States: Institute for Health Metrics and Evaluation (IHME).

[3] OECD (2019), *The Heavy Burden of Obesity: The Economics of Prevention*, OECD Publishing, Paris, *https://doi.org/10.1787/67450d67-en*.

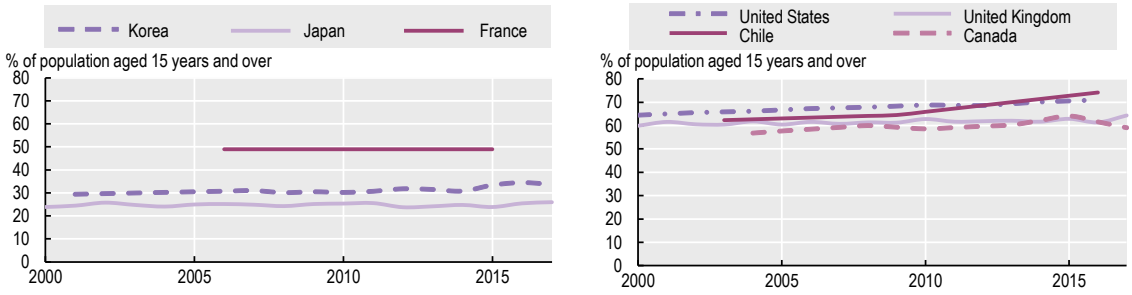
Figure 4.11. **Overweight including obesity among adults by sex, measured and self-reported, 2017 (or nearest year)**



Note: Left- and right-hand side estimates utilise measured and self-reported data, respectively. OECD36 average includes both data types.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015467

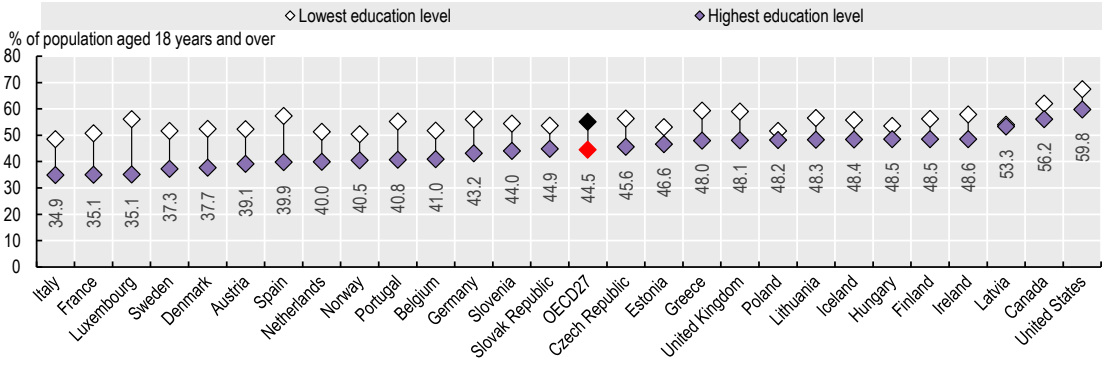
Figure 4.12. **Evolution of overweight including obesity in selected countries, measured, 2000-17 (or nearest year)**



Note: Linear interpolation was used to impute values where data was missing.
Source: OECD Health Statistics 2019.

StatLink https://doi.org/10.1787/888934015486

Figure 4.13. **Difference in overweight including obesity by education level, self-reported, 2014**



Source: EHIS2 and OECD estimates based on national health survey data.

StatLink https://doi.org/10.1787/888934015505

Overweight and obesity among children

Childhood overweight rates, including pre-obesity and obesity, have been growing worldwide. Environmental factors, lifestyle preferences, genetic makeup and culture all can cause children to be overweight. Obese children are at greater risk of developing hypertension and metabolic disorders. Psychologically, obesity can lead to poor self-esteem, eating disorders and depression. Further, obesity may act as a barrier for participating in educational and recreational activities. Childhood obesity is particularly concerning as it is a strong predictor of obesity in adulthood, which is linked to diabetes, heart disease and certain types of cancer (Bösch et al., 2018[1]; OECD, 2019[2]).

Almost one-third (31%) of children aged 5-9 years living in OECD countries are overweight (Figure 4.14). In the United States, Italy, New Zealand and Greece this figure exceeds 40%. Conversely, in Japan, Estonia, Lithuania, Switzerland and Latvia, rates are below 25%. The proportion of overweight boys exceeds that of girls in 38 of the 43 OECD and partner countries examined. Countries with the greatest disparity between genders are China, Korea, Poland, the Czech Republic and the Slovak Republic (above a 10 percentage point difference). The gap between boys and girls is small in Portugal and the United Kingdom (less than 1 percentage point).

The rate of overweight children increased from 20.5% to 31.4% across 35 OECD countries between 1990 and 2016 (Figure 4.15). Only in Belgium did this rate fall, albeit marginally. Growth was greatest in Hungary, Poland, Turkey, Slovenia and the Slovak Republic whose rates increased by more than 100%. At the other end of the spectrum, Sweden, Israel, Iceland, Japan and Denmark recorded growth rates at or below 25%. Similar trends were found in non-OECD countries. Growth in these countries was typically higher, which reflects their relatively low starting value. For example, the proportion of overweight and obese children in Indonesia, South Africa and India grew by over 600%; however, their starting values were just 2.4%, 2.3%, and 1%, respectively.

Childhood obesity is a complex issue and its causes are multi-faceted. Consequently, the response has been to implement a suite of complementary policies involving government, community leaders, schools, health professionals and industry. Commonly used policies to alter individual behaviours or the obesogenic environment include tightened regulation of advertising of unhealthy foods and drinks targeted at children; improved access to parks and playgrounds; food reformulation policies; and price interventions to promote a healthy lifestyle (OECD, 2019[2]).

Definition and comparability

Childhood overweight and obesity rates were calculated using body mass index (BMI). BMI is calculated by dividing weight in kilograms by height in metres squared.

A child is considered overweight if their BMI is one standard deviation above the median, according to the World Health Organization child growth standards. A child whose BMI is two standard deviations above the median is classified as obese.

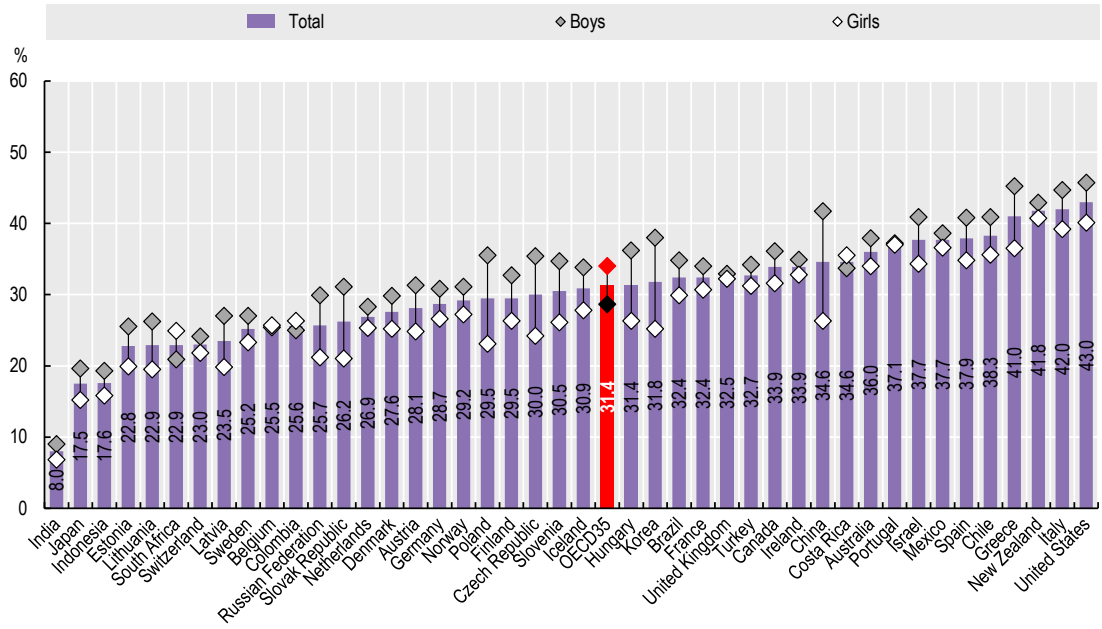
References

[1] Bösch, S. et al. (2018), *Taking Action on Childhood Obesity*, World Health Organization & World Obesity Federation, Geneva, *https://apps.who.int/iris/bitstream/handle/10665/274792/WHO-NMH-PND-ECHO-18.1-eng.pdf?ua=1*.

[2] OECD (2019), *The Heavy Burden of Obesity: The Economics of Prevention*, Organisation for Economic Cooperation and Development, Paris, *https://doi.org/10.1787/67450d67-en*.

[3] OECD (2017), *Obesity Update*, OECD, Paris, *https://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf*.

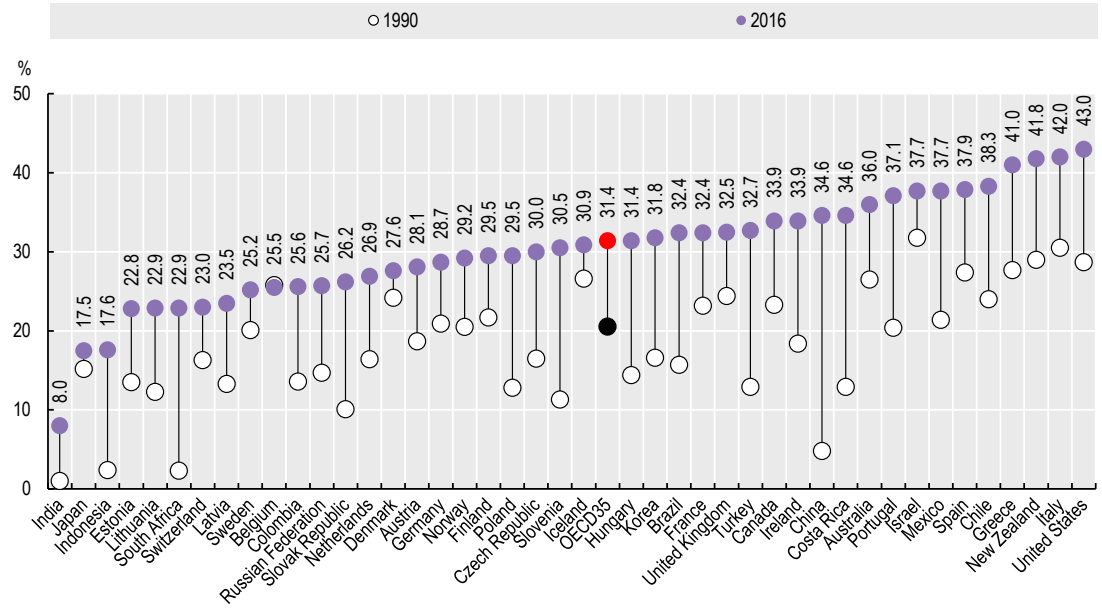
Figure 4.14. **Overweight including obesity among 5-9 year olds by sex, 2016**



Source: WHO Global Health Observatory.

StatLink https://doi.org/10.1787/888934015524

Figure 4.15. **Change in overweight including obesity among 5-9 year olds, 1990-2016**



Source: WHO Global Health Observatory.

StatLink https://doi.org/10.1787/888934015543

Air pollution and extreme temperatures

Climate change is one of the biggest challenges of present and future generations. It is linked to different types of environment distress, including air pollution and extreme temperatures. Air pollution is already a major cause of death and disability today, and its future impact is likely to be even greater without adequate policy action. Projections have estimated that outdoor air pollution may cause 6 to 9 million premature deaths a year worldwide by 2060, and cost 1% of global GDP as a result of sick days, medical bills and reduced agricultural output (OECD, 2015[1]).

Among OECD countries, ambient (outdoor) and household (indoor) air pollution caused about 40 deaths per 100 000 people in 2016 (Figure 4.16). Death rates ranged from over 80 deaths per 100 000 in Latvia, Hungary and Lithuania, to 15 deaths or less in New Zealand and Canada. In partner countries, death rates were particularly high in India and China (around 140 deaths per 100 000 people), and also higher than most OECD countries in the Russian Federation and Indonesia.

Extreme temperatures are also a consequence of climate change. Both extreme heat and cold can cause health problems and lead to death, as has been experienced in some OECD countries in recent decades. Extreme cold has generally had a greater impact on mortality than heatwaves, particularly in Eastern Europe and Nordic countries. Still, heatwaves have caused significant numbers of deaths in certain years. For instance, the record warm summer of 2003 caused around 80 000 deaths in Europe and the heatwaves in the summer of 2015 caused more than 3 000 deaths in France alone.

Death rates due to cold extreme temperatures are far higher in Lithuania, Latvia and Estonia than other OECD countries, with over 1 400 deaths per million people since 2000 (Figure 4.17). Although these high death rates are clearly linked to the naturally cold climates in these countries, they should not be viewed as inevitable – for example, Canada, Iceland and Norway had less than 80 deaths per million people over the same period. Evidence suggests that these deaths might be also linked to excessive alcohol use. For instance, in Finland among the deaths due to extreme cold in 2015-2017, 46% of men and 24% of women were alcohol-intoxicated.

Extreme heat caused 82 deaths per million people in Japan, followed by rates of 39 in France, 28 in Belgium and 21 in the United States since 2000. Whilst the total number of deaths due to cold temperatures has remained relatively stable since 2000, deaths from extreme heat have been on an upward trend, with two peaks in 2003 and 2010 (Figure 4.18).

Inter-sectoral policies are needed to address the impact of climate change. Countries can start planning to address pollution and its impacts on health, for instance, by creating partnerships with various international, national and local stakeholders, including local city authorities and ministries of industry, environment, transport, and agriculture. Bottled gas, for instance, can be used to replace solid fuels for cooking in order to address indoor pollution deaths. Reducing crop burning and lowering emissions from motor vehicles and industries would lower ambient air pollution. Health systems can also contribute, by preparing for new diseases that can develop with new climate conditions; promoting consumption of sustainably grown and sourced food; and reducing the carbon footprint of health facilities. In addition, health providers can reduce the environmental footprint in hospitals and in nursing homes by encouraging healthier food consumption, waste reduction and efficient energy use (Landrigan et al., 2018[2]; OECD, 2017[3]).

Definition and comparability

Household (indoor) air pollution results from polluting fuel used mainly for cooking. Ambient (outdoor) air pollution results from emissions from industrial activity, households, cars and trucks, which are complex mixtures of air pollutants, many of which are harmful to health. Of all of these pollutants, fine particulate matter has the greatest effect on human health. Polluting fuels include solid fuels such as wood, coal, animal dung, charcoal, crop wastes and kerosene. Attributable mortality is calculated by first combining information on the increased (or relative) risk of a disease resulting from exposure, with information on how widespread the exposure is in the population (e.g. the annual mean concentration of particulate matter to which the population is exposed). Applying this fraction to the total burden of disease (e.g. cardiopulmonary disease expressed as deaths or DALYs), gives the total number of deaths that results from exposure to household or ambient air pollution.

Data on fatalities due to extreme temperature events come from national registries on deaths by cause collected in the WHO Mortality Database. Deaths due to exposure to excessive natural heat (ICD code X30) and exposure to excessive natural cold (X31) were selected.

Note that for both air pollution and deaths from extreme temperatures, data are based on WHO estimates, which may differ from national data.

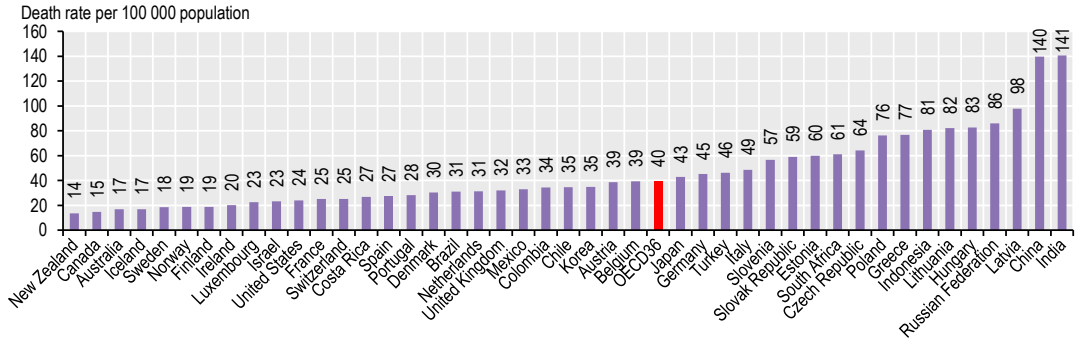
References

[2] Landrigan, P. et al. (2018), "The Lancet Commission on pollution and health", *The Lancet*, Vol. 391/10119, pp. 462-512, *http://dx.doi.org/10.1016/s0140-6736(17)32345-0*.

[3] OECD (2017), *Healthy people, healthy planet – The role of health systems in promoting healthier lifestyles and a greener future*, Organisation for Economic Cooperation and Development, OECD, Paris, *http://www.oecd.org/health/healthy-people-healthy-planet.htm*.

[1] OECD (2015), *The Economic Consequences of Climate Change*, OECD Publishing, Paris, *https://dx.doi.org/10.1787/9789264235410-en*.

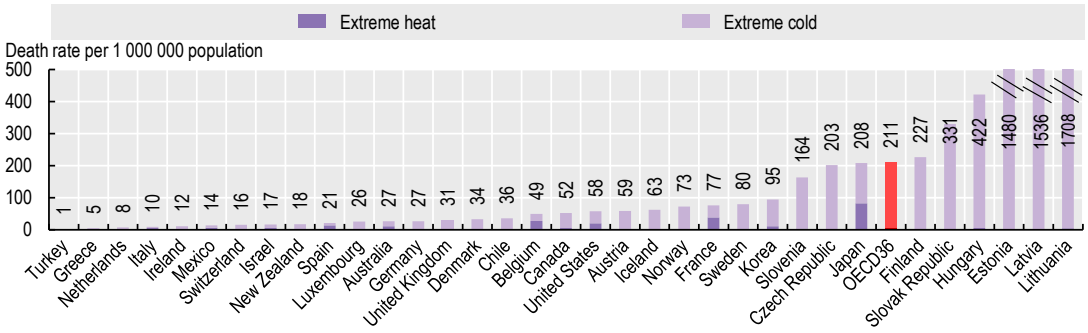
Figure 4.16. **Ambient and household air pollution attributable death rate, 2016**



Source: Global Health Observatory data repository, WHO.

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

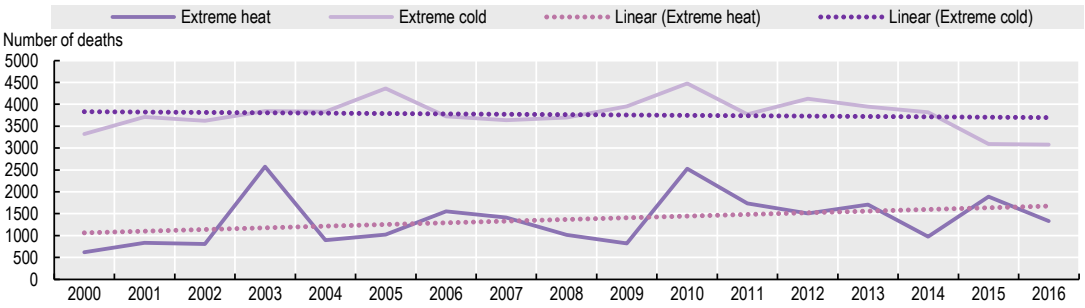
Figure 4.17. **Cumulative death rate due to extreme heat and extreme cold temperatures, 2000-17**



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