

Chapter 2

The health impact of COVID-19

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The health impact of COVID-19 has been devastating. By mid-October 2021, 240 million people had contracted the virus with nearly 4.9 million dying from it. Moreover, millions of survivors suffer from long-lasting symptoms that prevent a return to normal life. Mental distress has increased substantially. There has also been a clear social gradient to the risk of infection and death from the virus. Furthermore, COVID-19 has disrupted health care for people with other needs. For example, cancer screening was frequently delayed, non-urgent surgeries postponed, emergency department use dropped, and waiting times for elective surgeries increased. Nevertheless, vaccinations have been a game changer in 2021, reducing the risk of severe illness and death. However, vaccination hesitancy among some population groups and waning vaccine effectiveness are an ongoing challenge.

Introduction

The COVID-19 pandemic is the most important global health crisis since the 1918 influenza pandemic. By mid-October 2021, nearly 240 million cases had been reported and nearly 4.9 million people had died from the virus (Johns Hopkins Coronavirus Resource Center, 2021[1]). These figures under-estimate the overall health impact of the pandemic as many cases and deaths go undetected. Furthermore, both the disease and the containment and mitigation measures implemented to slow the spread of the SARS-CoV-2 virus and its variants have had a profound impact on the health and well-being of populations, and more broadly on societies and economies.

Addressing this health emergency has required far-reaching and drastic actions previously unthinkable in many OECD countries. Containment and mitigation policies to reduce the spread of the virus were deployed to varying degrees and duration in many OECD countries to respond to the various surges of contagion since early 2020. At the same time, several efforts were made to scale up health systems capacity to cope with the rise in incidence of severe COVID-19 cases by increasing the number of hospital beds, particularly intensive care capacity, mobilising health workers, and boosting laboratory capacity. Significant investments have been made in IT systems and digital health solutions to better track and trace infections and improve the timeliness and granularity of health data. Massive funds were also deployed into research to fast-track the development of effective vaccines and treatments.

Yet in many OECD countries, early responses to the pandemic did not come with the speed and scale required to tackle such an unprecedented crisis (even if this was in part due to inherent uncertainties about the virus at the time). In subsequent phases of the pandemic, crisis management has generally improved. However, structural weaknesses in preparedness for health emergencies and health system response capacity have been revealed. In its review of the global COVID-19 response, the *Independent Panel for Pandemic Preparedness and Response* noted inadequate funding for and stress testing of pandemic preparedness; a lack of decisive action to enact an aggressive containment strategy; the absence of co-ordinated, global leadership; and slowness of response funding as some of the main shortcomings (Independent Panel for Pandemic Preparedness and Response, 2021[2]). Other independent reviews carried out in Europe or by the G20 point to similar issues (Pan-European Commission on Health and Sustainable Development, 2021[3]; G20, 2021[4]).

The crisis provides an opportunity to learn how to make health systems more resilient for the future, taking stock of the effects of the pandemic and the measures implemented to contain them. This chapter contributes to such efforts by assessing the direct and indirect health impacts of COVID-19 in OECD member countries.

The chapter first describes the direct and overall health repercussions of COVID-19 in OECD countries, including key measures such as COVID-19 infections and deaths, along with population health indicators such as excess mortality and life expectancy, and what is known about 'long COVID'. Special attention is given to how the vaccination rollout and the emergence of virus variants have altered the evolution of the pandemic in 2021. The analysis then focuses on some particularly vulnerable and high-risk groups, including the extent to which there has been a social gradient to infections, illness and death. Finally, the indirect impact of COVID-19 on people's health is

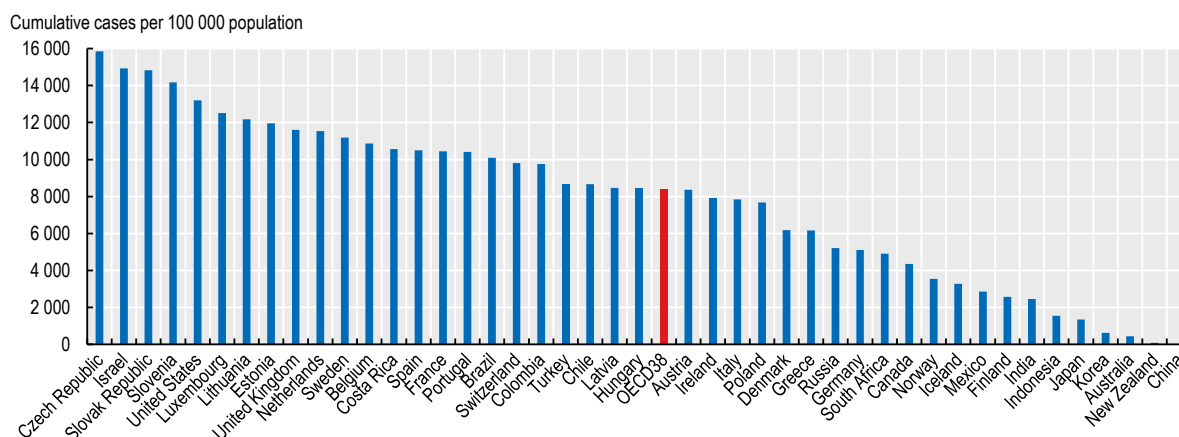
assessed by investigating the adverse effects on mental health, and how access to care for non-COVID-19 patients has been disrupted.

The direct impact of COVID-19

The direct effects of COVID-19 on population health have been dramatic. Across the 38 OECD countries, more than 110 million infections were reported, and more than 2.1 million people have died from the SARS-CoV-2 virus, as of mid-October 2021. This represents slightly less than half of recorded global COVID-19 infections (47%) and fatalities (44%). As many infections are asymptomatic and testing capacity limited in some countries, these figures are large underestimations. An increasing number of seroprevalence studies suggest that the real magnitude of infections has been much greater than officially identified in many regions (Ioannidis, 2021[5]; Byambasuren et al., 2021[6]).

As of early October 2021, cumulative reported COVID-19 cases averaged around 8 400 per 100 000 inhabitants across OECD countries, ranging from nearly 16 000 per 100 000 inhabitants in the Czech Republic to less than 100 in New Zealand (Figure 2.1). Reported COVID-19 deaths rates varied from over 3 000 deaths per million inhabitants in Hungary to 6 deaths per million in New Zealand, with an OECD average of 1 370 (Figure 2.2). Among OECD Key Partner countries, cumulative reported COVID-19 deaths are high in Brazil (2 800 per million inhabitants) but very low in China (3 per million inhabitants).

Figure 2.1. Cumulative number of reported COVID-19 cases per 100 000 population, January 2020 to early October 2021



Note: Data are affected by countries' capacity to detect COVID-19 infections – which was particularly limited in many countries at the onset of the crisis – and by the testing strategies applied. Data are included up until calendar week 39/2021. Countries displayed in chart include OECD countries and Key Partner countries Brazil, China, India, Indonesia, Russia and South Africa.

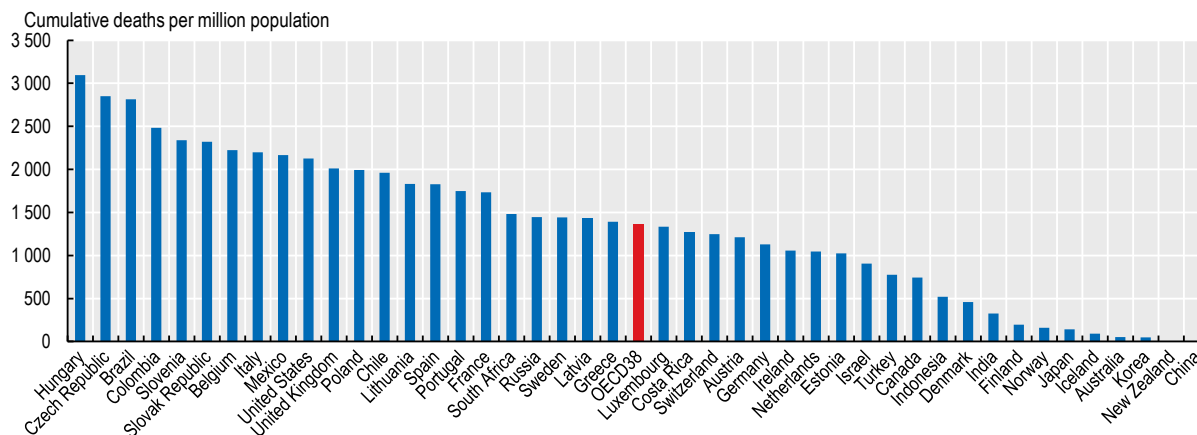
Source: ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/>. ECDC data use national data sources for non-European countries.

Deaths peaked in many European OECD countries in late 2020 and early 2021, whereas North and Latin American OECD countries have faced high death rates for most of 2021

Since early 2020, the world has been hit by several peaks in SARS-CoV-2 infections and associated COVID-19 deaths, but the timing and magnitude of these peaks have varied across countries and regions (Figure 2.3 and Figure 2.4).

- Most European OECD countries experienced peaks in infections and deaths in late 2020 and early 2021, with many southern and western European countries also hit hard in March/April 2020. While

Figure 2.2. **Cumulative number of confirmed or suspected COVID-19 deaths per million population, January 2020 to early October 2021**



Note: Depending on the country, data may refer to only confirmed or both confirmed and suspected deaths due to COVID-19. Data are affected by countries' capacity to detect COVID-19 infections and recording, registration and coding practices. Data are included up to calendar week 39/2021. Countries displayed in chart include OECD countries and Key Partner countries Brazil, China, India, Indonesia, Russia and South Africa.

Source: ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/>. ECDC data use national data sources for non-European countries.

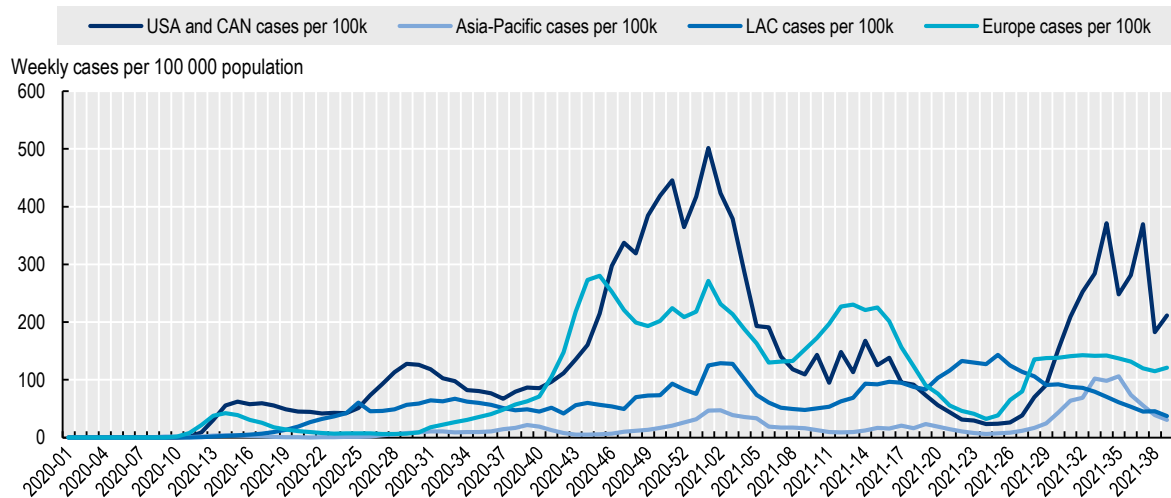
in some European countries infection rates went up again substantially around July 2021, this was not matched by a commensurate increase in mortality.

- In the United States and Canada, disease progression was broadly similar to that seen in Europe for most of 2020 and 2021, but new COVID-19 infections and deaths spiked further in August and September 2021.
- The situation among the OECD countries in Latin America was diverse. Reported infection and death rates peaked in July 2021 for Colombia, but in September 2021 for Costa Rica. Chile recorded its highest mortality rate around mid-2020 with a peak of recorded infections in the second quarter of 2021. Due to low testing rates, data for Mexico is underestimated.¹
- In the Asia-Pacific OECD countries, both weekly incidence and death rates were low by comparison throughout 2020 and 2021. That said, Australia, Korea and Japan all recorded their infection peaks in the third quarter of 2021.

Differences in the evolution of new COVID-19 infections and deaths across countries reflect variations in containment and mitigation strategies and the timing of their implementation, as well as differences in the capacity of health systems to treat COVID-19 patients and to adapt to the ongoing challenges. Indeed, case fatality rates have generally decreased over the course of the pandemic, with the cumulative rate converging to around 1-2% in most OECD countries by early October 2021. Some of this can simply be explained by increased case detection over time. Vaccination campaigns, along with better disease management and strengthened health system capacity have had a major impact in reducing case fatality rates. Still, factors beyond the immediate control of policy makers – such as geographical characteristics, population demographics, the prevalence of certain risk factors such as obesity – made some countries more susceptible than others to high rates of infection and mortality (OECD, 2020[8]; OECD, 2021[9]; OECD/European Union, 2020[10]; OECD, 2020[11]; OECD/European Union, 2020[10]).

The emergence of “variants of concern” has been a key factor in the evolution of the pandemic. This designation is applied to virus variants that show increased transmissibility and/or virulence, or are associated with a reduced effectiveness of vaccines and treatments, thus posing a greater health risk than the original strain.² This is particularly true of the Delta variant. First identified in

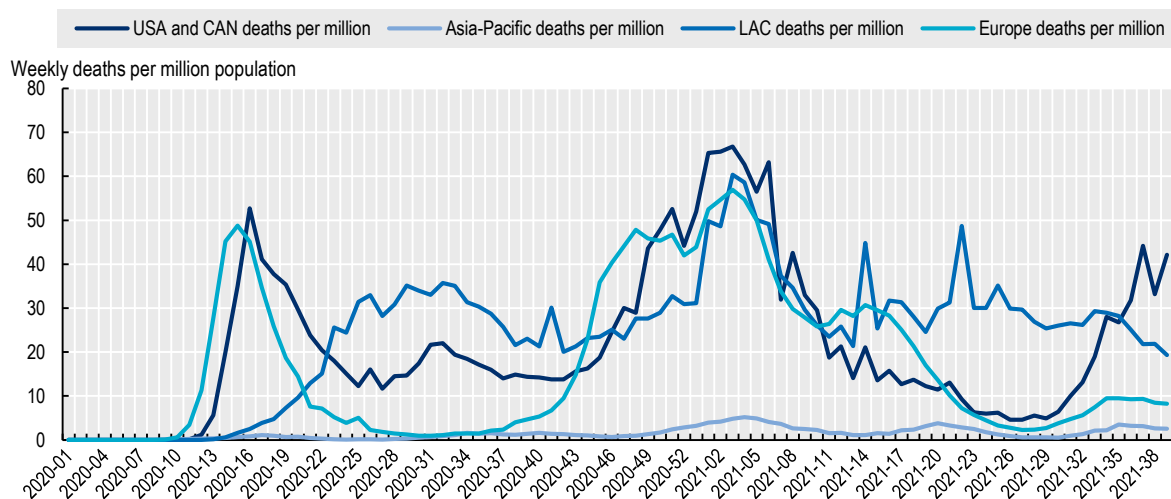
Figure 2.3. Newly reported COVID-19 cases per week, OECD countries grouped by regions, January 2020 to early October 2021



Note: Data are affected by countries' capacity to detect COVID-19 infections. Regional averages are calculated by dividing the total number of cases by total populations.

Source: ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/>. ECDC data use national data sources for non-European countries.

Figure 2.4. Weekly reported COVID-19 deaths, OECD countries grouped by region, January 2020 to early October 2021



Note: Regional averages are calculated by dividing the total number of cases by total populations.

Source: ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/>. ECDC data use national data sources for non-European countries.

October 2020, it rapidly became the dominant SARS-CoV-2 virus strain by mid-2021 in nearly all OECD countries. The Delta variant appears to be more than twice as transmissible as previous variants and the ancestral strain (CDC, 2021[12]), and leads to more severe infections. Among unvaccinated people, the risk of hospitalisation is around double that of the Alpha variant (Twohig et al., 2021[13]), while the risk of dying is also higher than with previous variants, and more than double that of the original strain (Fisman and Tuite, 2021[14]).

Vaccines have reduced the risk of severe illness and death from COVID-19 in 2021

The rollout of COVID-19 vaccines in 2021 has been a game changer in global efforts to bring the pandemic under control (OECD, 2021[15]). The various vaccines authorised in OECD countries all substantially decrease the risk of symptomatic infection, hospitalisation and death, and reduce (but do not eliminate) transmission when the full course of vaccination is completed. A growing body of research suggests that the real-world effectiveness in preventing symptomatic infection after two doses of either of the two currently available mRNA vaccines (Pfizer-BioNTech and Moderna) is above 85% (Public Health Ontario, 2021[16]; Vaccine Effectiveness Expert Panel, 2021[17]).³ It is around 80% for the Oxford-AstraZeneca vaccine against the Alpha variant (Vaccine Effectiveness Expert Panel, 2021[17]). Protection against severe disease, hospitalisation and death is even higher (Public Health Ontario, 2021[16]; Vaccine Effectiveness Expert Panel, 2021[17]). Evidence points to vaccines being somewhat less effective in preventing symptomatic infection with the Delta variant but still highly effective in reducing hospitalisation and death (Lopez Bernal et al., 2021[18]; Vaccine Effectiveness Expert Panel, 2021[17]).

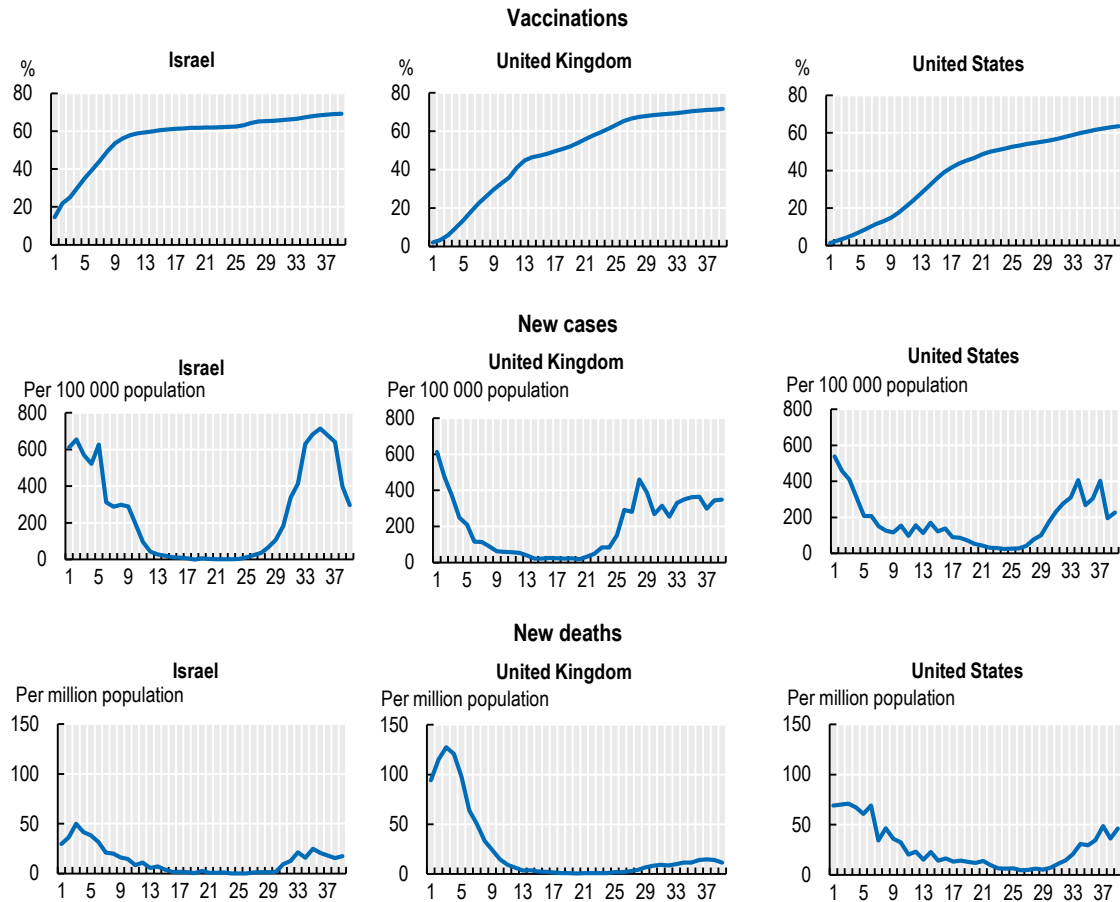
Progress in vaccination has varied markedly across OECD countries, with the proportion of the population fully vaccinated ranging from just under 40% in Colombia and Mexico to 86% in Portugal, as of mid-October 2021 (Our World in Data, 2021[19]). The speed of vaccination roll-out is affected by many factors, including regulatory approval processes, vaccine procurement and distribution strategies, and infrastructure and health workforce capacity. Vaccine hesitancy and resistance among some population groups are also slowing vaccination progress in some countries.

Israel, the United Kingdom and the United States were among the first OECD countries to commence their vaccination campaigns. Rapid roll-out in the early months of 2021, accompanied by containment and mitigation measures, contributed to drastic reductions in new infections and deaths in the first half of 2021 (OECD, 2021[15]). In all three countries, a peak of infections occurred in early January 2021, with infection rates then declining rapidly in the following months (Figure 2.5). Infection rates have increased again since June 2021 in these, and indeed many other OECD countries, as the more infectious Delta variant spread. However, this was generally not accompanied by commensurate increase in the number of COVID-19 deaths. Indeed, in OECD countries with vaccination rates above 65% as of mid-October, weekly deaths from COVID-19 have fallen by an average of 86% since late-January 2021 – as compared with a 55% decrease for OECD countries with lower vaccination rates (among countries registering any COVID-19 deaths).

The increases in COVID-19 infections and deaths starting around June/July 2020 in these three countries and in some other OECD countries have been mainly among the unvaccinated, as vaccination rates have been plateauing at around 60-70% of the population after initially rapid roll-outs. For example, data from France for the last week of September 2021 indicate that the seven-day incidence and mortality rates were eight times higher among the unvaccinated than the fully vaccinated. Moreover, unvaccinated people accounted for 74% of all COVID-19 hospital admissions and 77% of all COVID-19 ICU admissions (DREES, 2021[20]). In Italy, 90% of all COVID-19 deaths between mid-August and mid-September 2021 among people aged 40 to 59 years were among those with no vaccine protection (Istituto Superiore di Sanità, 2021[21]). Similar outcomes have been observed in the United States where, since the spread of the Delta variant, the unvaccinated have had a five times greater risk of infection, a ten times greater risk of hospitalisation, and an eleven times greater risk of death (CDC, 2021[22]).

Nevertheless, the protection that vaccines give against COVID-19 appears to fade over time (Public Health England, 2021[23]; Thomas et al., 2021[24]; Naaber et al., 2021[25]). As a result, by early October 2021, 15 OECD countries had begun providing booster doses for part or all of their vaccinated populations. In most countries these have been limited to selected age groups or at-risk populations, however the proportion of the population that has received a vaccine booster is already

Figure 2.5. **Vaccination progress and weekly new COVID-19 cases and deaths in Israel, the United Kingdom and the United States, 2021 (by calendar week)**



Note: Fully or partly vaccinated. Last data for calendar week 39.

Source: Our World in Data (2021[19]), "Coronavirus (COVID-19) Vaccinations", <https://ourworldindata.org/covid-vaccinations>; ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasesdeath/>.

high in Israel (43%) and Chile (20%) (Our World in Data, 2021[19]). Initial evidence from Israel suggests that booster doses substantially increase protection against symptomatic infection and severe disease among those aged 60 and over (Bar-On et al., 2021[26]). However, this practice remains controversial, in light of limited vaccination progress in other parts of the world, with the World Health Organization calling for a moratorium on booster doses until the end of 2021 to allow all countries to vaccinate at least 40% of their populations (WHO, 2021[27]).

The higher transmissibility of the Delta variant and waning effectiveness of vaccines requires a much higher vaccination rate than originally envisaged to reach 'herd immunity' – if in fact it can be achieved at all. Some public health measures may therefore need to be considered even in countries with high levels of vaccination.

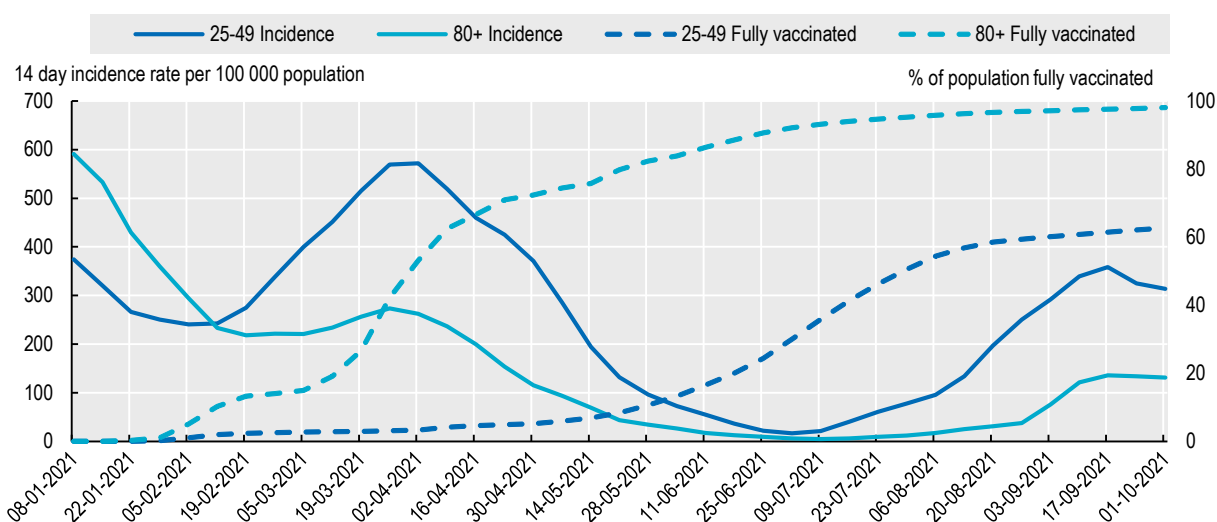
Vaccination campaigns have helped protect older people and other vulnerable groups

Given the step-wise progress in the supply of vaccines and the logistical challenges of rapid vaccine rollout, all OECD countries established clear priorities as to which sections of their populations should benefit first from immunisation. While the precise sequencing of vaccinations differed across countries, older people and other vulnerable groups were consistently given high

priority. By October 2021, nearly all OECD countries had made access to vaccine universal for adults, with adolescents also included in most countries' vaccination campaigns.

The impact of vaccination among vulnerable groups has been clear. In Austria, for example, infection rates have been falling for people aged 80 and over since the beginning of the year and were close to zero in early July 2021, with nearly 93% of this population group fully vaccinated (Figure 2.6). The spread of the Delta variant has increased infection rates again from around July 2021 across all age groups. However, due to the fact that the older population group had a much higher vaccination protection than younger groups, the subsequent increase in infection rates – due to the higher transmissibility of the virus variant and waning vaccine effectiveness – was much more limited in this age group than in younger people. Similar patterns have been observed in Germany, where data demonstrate a much more rapid decline in infections among people aged 80 and over than among younger population groups since January 2021 (Robert Koch Institut, 2021[28]).

Figure 2.6. **Evolution of 14-day incidence rate and progress in vaccination rollout over time, per age group, Austria**



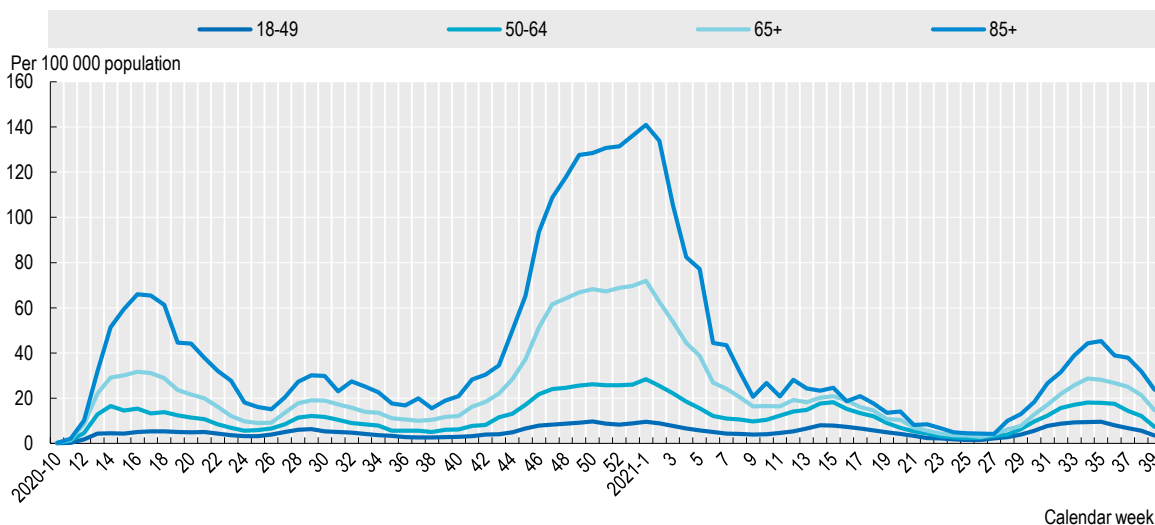
Source: ECDC (2021[7]) "COVID-19 datasets", <https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/>; Our World in Data (2021[19]), "Coronavirus (COVID-19) Vaccinations", <https://ourworldindata.org/covid-vaccinations>.

Progress in vaccination coverage has also contributed to fewer hospital admissions in 2021, particularly among older people. In the United States, for example, hospitalisation rates among people aged 85 and over fell substantially as vaccination campaigns gathered pace (Figure 2.7). By June 2021, hospitalisation rates in this more vulnerable age group became very close to the overall hospitalisation rate across all age groups. Hospitalisation rates increased again from July, due in part to the Delta variant, before peaking in early September. However, while hospitalisation rates among people aged under 50 were at the same level in September as in January, the hospitalisation rate among people aged 85 and older was only a third of the peak in January.

Excess deaths were more than 60% greater than reported COVID-19 deaths in 2020 across OECD countries

Whilst reported COVID-19 deaths are a critical measure to monitor the health impact of the pandemic, international comparability of this indicator has been limited by differences in recording, registration and coding practices across countries. Moreover, factors such as the low availability of

Figure 2.7. COVID-19-associated weekly hospitalisation rates, by age group, United States, March 2020 to September 2021



Note: COVID-NET covers hospitals from 14 states.

Source: CDC (2021[29]), "COVID-NET Laboratory-confirmed COVID-19 hospitalizations", <https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network>.

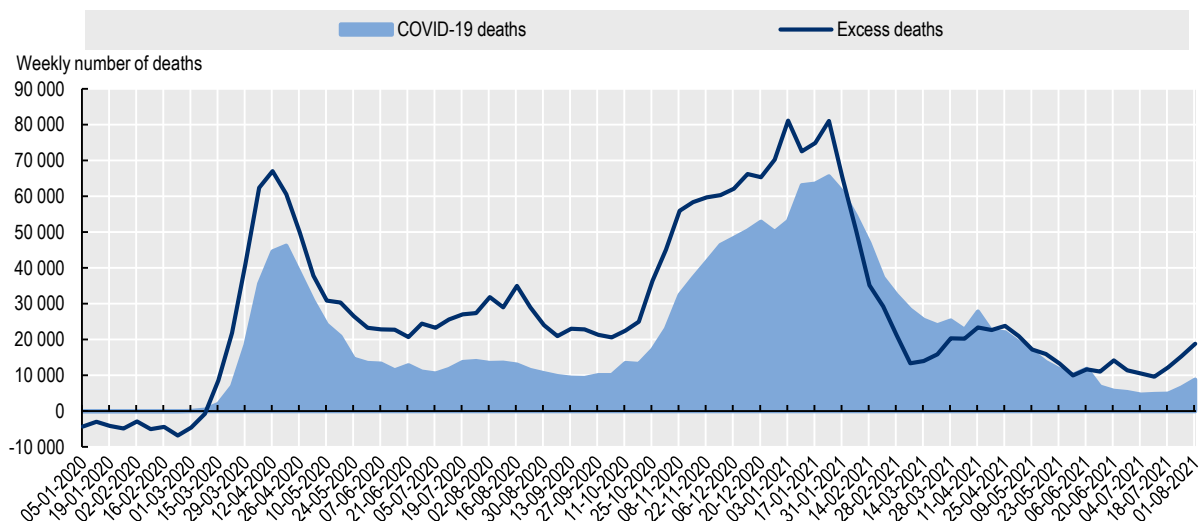
diagnostic tests at the start of the pandemic are likely to have impacted accurate attribution of the causes of death. Therefore, the reported count of deaths due to COVID-19 is likely underestimated to varying degrees across countries.

An analysis of mortality from all causes – and particularly excess mortality, a measure of the total number of deaths over and above what would have normally been expected at a given time of the year – provides a measure of overall mortality that is less affected by the factors mentioned above (Box 2.1). However, it is not a direct measure of COVID-19 deaths, as it captures all excess deaths irrespective of their cause.

Across 30 OECD countries, the total number of excess deaths was much higher than recorded COVID-19 deaths in all weeks from March 2020 until end of 2020 (Figure 2.8). This suggests a substantial underestimation of direct COVID-19 deaths in some countries and also points to a possible increase in mortality for other causes indirectly related to COVID-19. Excess deaths began to decline in late January 2021 and remained below the number of COVID-19 deaths in February and March 2021. One possible explanation is the drastic reduction in the number of influenza-related fatalities compared to the years 2015-19 in many countries in the Northern hemisphere due to social distancing measures. So far, excess mortality in 2021 has been much more moderate and more aligned with the recording of COVID-19 fatalities.

On a country level, excess mortality was positive in all but one country (Norway) in the 18 months between January 2020 and June 2021.⁴ The excess mortality rate per million population was particularly high in Mexico (Figure 2.9).⁵ Very low excess mortality was recorded in New Zealand, Australia, Denmark, Iceland and Korea. In total, OECD countries recorded around 2.5 million additional deaths, as compared with the average number of deaths over the five preceding years. This means that 16% more people died between January 2020 and June 2021 than would normally have been expected (Annex Table 2.A.1).

Figure 2.8. **Weekly COVID-19 deaths compared to weekly excess deaths in 30 OECD countries, January 2020 to early August 2021**



Note: Data exclude Australia, Canada, Colombia, Costa Rica, Ireland, Japan, Korea, and Turkey.

Source: OECD (2021[30]), OECD Health Statistics, <https://doi.org/10.1787/health-data-en>.

On a global scale, the WHO estimated that the total global excess deaths attributable to COVID-19 in 2020, both directly and indirectly, should amount to at least 3 million (WHO, 2021[31]). This would be 1.2 million more deaths than officially reported as COVID-19 deaths.

Life expectancy decreased in 2020 in 24 out of 30 OECD countries

In all but six OECD countries, the exceptionally high number of deaths in 2020 had an impact on life expectancy. Even before COVID-19, gains in life expectancy had been slowing down markedly in a number of OECD countries over the past decade, largely due to a slowdown in improvements in mortality from cardiovascular diseases, a rise in mortality from dementia and bad flu seasons (Raleigh, 2019[34]). Preliminary data for 2020 suggest that life expectancy dropped in all OECD countries for which data are available, other than in Norway, Japan, Costa Rica, Denmark, Finland and Latvia (Figure 2.10).

The annual reduction was particularly large in the United States (-1.6 years), Spain (-1.5), Lithuania and Poland (both -1.3), as well as in Belgium and Italy (both -1.2). In Italy, Poland, Spain and the United Kingdom life expectancy is now approximately around 2010 levels; in the United States, projected life expectancy in 2020 is more than one year below that of 2010.

Long COVID-19 affects many people

'Long COVID', characterised by symptoms including fatigue, breathlessness, chest pain or anxiety, impedes a return to normal life, with potentially long-lasting social and economic repercussions. While research on this disease is growing, there are still knowledge gaps on the mechanisms by which infection can lead to prolonged symptoms, why particular population groups are at higher risk and how to best treat the disease. A common understanding of how 'long COVID' should be exactly defined is also missing to date. That said, some converging evidence on long COVID-19 has started to emerge.

Box 2.1. Measuring COVID-19 deaths and all-cause mortality

Limitations affecting the cross-country comparability of COVID-19 deaths data

For reported COVID-19 deaths, cross-country comparability is affected by different registration practices depending on where the death occurred and the availability of testing (particularly early on in the pandemic), as well as different coding practices. In particular:

- Whether COVID-19 deaths occurring outside of hospitals are fully recorded. For example, Belgium, France and Italy, among others, put in place improved and faster reporting procedures early on to count deaths taking place in other settings, notably care homes.
- Differences in testing capacity across countries and over time, with many countries having faced severe constraints in testing capacities early in the pandemic.
- Coding differences, especially whether suspected cases are counted alongside those confirmed by tests. Belgium, Luxembourg and the United Kingdom are examples of countries including suspected as well as cases confirmed by tests in their data on COVID-19 deaths.
- Whether only deaths with COVID-19 as an underlying cause of death are counted, or whether deaths with COVID-19 as a secondary, contributory cause are also included.

Using excess mortality data to measure the direct and indirect impact of COVID-19

Excess mortality has considerably less cross-country comparability limitations than reported COVID-19 deaths. However, it is not a direct measure of COVID-19 deaths, as it captures all excess deaths irrespective of their cause. National variations in underlying death rates related to various events and evolution of the virus mean that caution is needed when comparing excess mortality at a given point in time. In particular:

- Cross-country differences in other significant events this year and in previous years, such as severe or mild flu seasons, heatwaves and natural disasters, can lead to under- or over-estimates of the impact of COVID-19 on excess mortality. In this chapter, the five-year period (2015-19) is chosen to help limit the impact of any variations. However, by using this five-year period, the expected number of deaths assumes that there is no change either in the size of the population or the age structure.
- Excess mortality is calculated as a net effect and can therefore be negative – that is, fewer people died during the period than compared to previous years. As a result of effective pandemic controls there may be both a low number of COVID-19 deaths and a reduction in other deaths. In such cases, the number of reported COVID-19 deaths is a more accurate indicator of the pandemic's toll (Simonson and Viboud, 2021[32]).
- Differences in the timing of the onset and subsequent waves of COVID-19 can affect comparability over a short-term period.

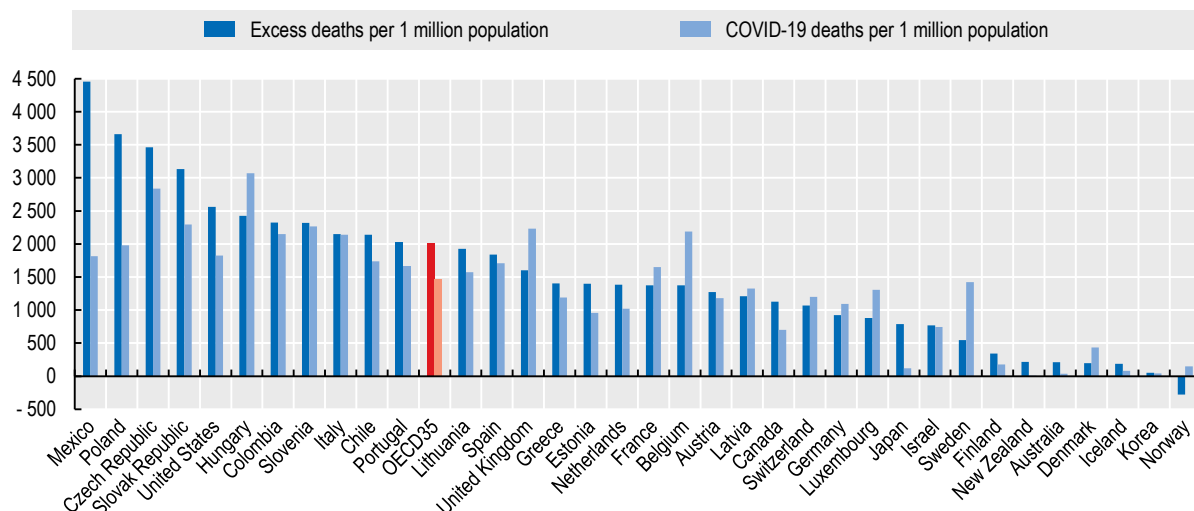
For both COVID-19 and excess deaths, different delays in reporting deaths can impact recent trends as well as cross-country comparisons.

Source: Based on Morgan et al. (2020[33]), "Excess mortality: Measuring the direct and indirect impact of COVID-19", <https://doi.org/10.1787/c5dc0c50-en>.

Results on **prevalence of long COVID-19** differ widely across studies depending on study design, populations analysed and other factors.

- Research based on some of the largest study populations suggest high prevalence rates. Using linked data from Electronic Health Records from over 270 000 COVID-19 survivors mainly from the United States, Taquet et al. found that 37% of patients suffer from at least one long COVID-19 symptom 4-6 months after diagnosis (Taquet et al., 2021[35]). Analysing a recent wave of their Coronavirus Infection Survey, and based on a similar sample size, the Office of National Statistics estimated that 1.1 million people in the United Kingdom (1.7% of the population) were experiencing self-reported 'long COVID' for more than four weeks after the first suspected COVID-19 infection in early September 2021 (ONS, 2021[36]). Of those, 77% had (or suspected they had) COVID-19 at least 12 weeks before.
- Other small to medium-scale studies also point to long COVID-19 being a major concern. In France, for example, among over 4 000 patients, around 60% of patients hospitalised for

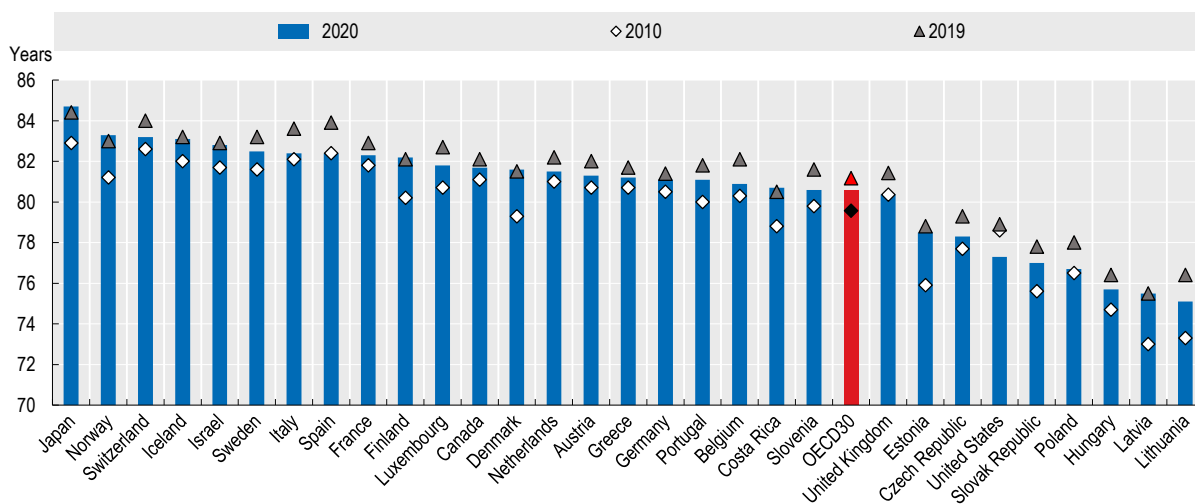
Figure 2.9. Cumulative excess mortality compared to reported COVID-19 deaths per million population, January 2020 to end of June 2021



Note: Excess deaths data are not available for Costa Rica, Ireland and Turkey. Data for Australia are only available up to week 25, for Canada up to week 22, and for Colombia up to week 18. Comparator years to calculate excess deaths are 2015-19. Rates are not age-adjusted. Reported COVID-19 deaths can be affected by countries' capacity to detect and record COVID-19 infections and are included in the chart to highlight the important differences with excess mortality in some countries.

Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>, based on EUROSTAT data and national data.

Figure 2.10. Life expectancy in 2020, 2019 and 2010, selected OECD countries



Note: 2020 data are provisional for some countries.

Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>.

COVID-19 had at least one symptom up to six months after infection, and 25% had at least three symptoms (Ghosn et al., 2021[37]). Smaller studies including people from Rome-Italy (Carfi et al., 2020[38]) and Geneva-Switzerland (Nehme et al., 2021[39]), show broadly consistent results. However, the study of Sudre et al. point to a more limited number of people suffering from long COVID-19, with 2.3% of people infected reporting symptoms lasting 12 weeks or longer (Sudre et al., 2021[40]).

- Indeed, summarising study results across Europe, the United States and China, Rajan et al. concluded that around one-quarter of those with COVID-19 have continuing symptoms 4-5 weeks after testing positive, and about one in ten experience symptoms after 12 weeks (Rajan et al., 2021[41]).

Across different studies, the most common **long COVID-19 symptoms** are fatigue, breathlessness as well as anxiety (COVID-19 Longitudinal Health and Wellbeing National Core Study/ONS, 2021[42]; Rajan et al., 2021[41]; Taquet et al., 2021[35]; Huang et al., 2021[43]). Among self-reported long COVID-19 cases in the United Kingdom, 19% declare that their ability to carry out day-to-day activities had been limited a lot (ONS, 2021[36]).

Certain population groups appear to be at **higher risk of long COVID-19**. Prolonged symptoms are associated with age and being female (Sudre et al., 2021[40]). Other risk factors include overweight/obesity, prior hospitalisation for COVID-19, and the number of symptoms in the acute phase (Rajan et al., 2021[41]).

Some early evidence also points to a substantial **economic impact** of long COVID-19 due to absence from work or reduced productivity. Analysing the employment status of hospitalised COVID-19 patients in France, Garrigues et al. found that only 69% of those previously working had returned to their workplace 3-4 months after admission (Garrigues et al., 2020[44]). Similar results can be found in a study in the United States (Chopra et al., 2020[45]), where 23% of those previously working could not return to their job for health reasons 60-days after hospital discharge. Among those who returned to work, 26% either worked reduced hours or had modified duties for health reasons.

Addressing long COVID-19 has become a priority in many countries in 2021. In Europe, special treatment guidelines were developed and dedicated post-COVID-19 clinics created to speed up the recovery of long COVID-19 patients (Rajan et al., 2021[41]). The further rollout of the COVID-19 vaccination campaign is expected to reduce the number of new long COVID-19 cases since evidence points to vaccination increasing protection against suffering from long COVID-19 symptoms (Antonelli et al., 2021[46]).

COVID-19 has disproportionately hit vulnerable populations

While COVID-19 poses a threat to the entire population, not all population groups are similarly at risk. Populations exposed to more social interactions – including ‘essential’ workers such as supermarket staff as well as health and long-term care workers – are more likely to become infected. While age remains the largest risk factor for severe illness or death, people of all ages with certain underlying health conditions – including obesity, cancer, hypertension, diabetes, and chronic obstructive pulmonary disorder – face an elevated risk (Katz, 2021[47]; Sanchez-Ramirez and Mackey, 2020[48]; Tartof et al., 2020[49]). Smoking, harmful alcohol use and obesity also increase the likelihood of dying from COVID-19 (Reddy et al., 2021[50]; Sanchez-Ramirez and Mackey, 2020[48]; WHO, 2020[51]). These risks are not equally distributed: poorer and more disadvantaged people have been at a higher risk of infection, hospitalisation and death throughout much of the pandemic.

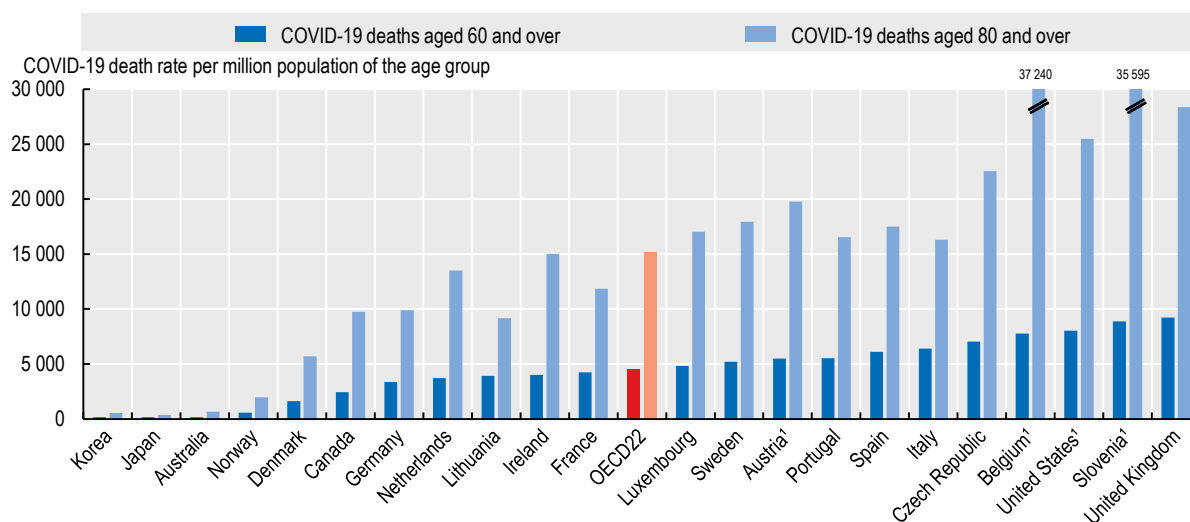
More than 90% of COVID-19 deaths have occurred among people aged 60 years or older

The vast majority of deaths from COVID-19 through early 2021 have occurred in older populations, with 93% occurring among those 60 and over, and close to three-fifths (58%) of all deaths occurring among people 80 or older across 21 OECD countries with comparable data (OECD, forthcoming[52]). Some caution is needed in interpreting death rates by age group, due to differences in coding of COVID-19 deaths that may be particularly significant among older populations where co-morbidities are higher. The impact of COVID-19 mortality among older populations has been

particularly high in Slovenia, the United Kingdom, the United States and Belgium, where more than 2.5% of those aged 80-85 years and over died (Figure 2.11).

Residents of long-term care (LTC) facilities have been especially vulnerable to contracting and dying from COVID-19. The advanced age of many residents, lack of sufficient personal protective equipment (PPE) for residents and care givers (or its insufficient use), and poor infection control meant that many LTC facilities experienced outbreaks that spread rapidly – particularly early in the pandemic.

Figure 2.11. **Confirmed or suspected COVID-19 deaths per million inhabitants among older population groups (through May 2021)**



Note: Data on cumulative deaths up to early May 2021, except for Canada, Italy and the United Kingdom (late April); the Czech Republic, Ireland, Japan, Lithuania and Slovenia (late February). Cross-country differences in coding and reporting affects comparability of results. 1. Data refer to those aged 65 and over and 85 and over for Austria, Belgium, Slovenia and the United States (65+ and 85+). The United Kingdom refers to England and Wales. Source: COVID-19 INED (2020[53]), "Demographics of COVID-19 deaths", <https://dc-covid.site.ined.fr/en/>, complemented with 2021 OECD Questionnaire on COVID-19 and LTC. Eurostat (2021[54]), "Life expectancy by age and sex", https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_mlexpec&lang=en, and OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>, for data on demographics (2018).

COVID-19 has exposed and exacerbated existing disparities in society

Socially disadvantaged groups have faced an elevated risk of infection, severe illness and death from the virus. This is due to a higher likelihood of poor working conditions, fewer possibilities to telework, greater exposure to other individuals through more crowded living and working conditions, and a higher prevalence of key risk factors. In particular, emerging evidence from OECD countries has shown that the risk of infection and adverse health effects has been higher among:

- Those living in **deprived areas**, as seen in studies for Belgium, Colombia, Germany, Italy and the United Kingdom (England). For example, in the United Kingdom between March and July 2020, the COVID-19 death rate was 2.2 times higher among people living in the most deprived areas in England as compared to the least deprived areas (ONS, 2020[55]).
- People with **lower incomes**, as documented for Belgium, Korea, Luxembourg, the Netherlands and Sweden. In Belgium, for instance, excess mortality was twice as high for people from the lowest income decile as compared to the highest income decile (Decoster, Minten and Spinnewijn, 2020[56]).

- People with **lower educational attainment**, as observed in Belgium and Sweden. For example, in Sweden men and women with only primary educational attainment had COVID-19 mortality rates 24% and 51% higher than men and women who had completed post-secondary education (Drefahl et al., 2020[57]).
- Most **ethnic minorities** as seen in studies for Brazil, Canada, Mexico, New Zealand, the United Kingdom and the United States. In Brazil, for example, the mortality risk from COVID-19 was 1.5 times higher among the black population, despite a higher incidence rate among the white population (Martins-Filho et al., 2021[58]).
- **Immigrants and their families** as documented for Denmark, France, Italy, Luxembourg, Norway, Sweden and the United Kingdom. For example, in Norway, COVID-19 hospital admission rates were three times higher for people born outside the country (NIPH, 2021[59]).

While the general direction of these observed disparities is clear, there is a wide variation in observed results, due in part to methodological differences such as study design and the timeframe of observation. Table 2.1 provides more in-depth information on evidence on socio-economic and demographic inequalities for key COVID-19 health outcome variables such as infections, hospitalisations and mortality.

Table 2.1. **Impact of socio-economic and demographic inequalities on COVID-19 outcomes, selected studies**

SES indicator	COVID-19 outcomes
Deprivation	<ul style="list-style-type: none"> • In Belgium, excess mortality for the most deprived group was 11% higher during the peak of the first wave and 13% higher during the peak of the second wave, compared to the least deprived population (Bourguignon et al., 2020[60]). • In Colombia, the risk of death from COVID-19 was 73% higher among people of low socio-economic status, compared to those of high socio-economic status (Cifuentes et al., 2021[61]). • In Germany, while COVID-19 incidence was initially higher in less-deprived areas, this trend eventually reversed as incidence climbed in more deprived areas and declined in areas of low deprivation (Wachtler et al., 2020[62]; Hoebel et al., 2021[63]). • In Italy, the incidence rate ratio for COVID-19 between the most deprived and least deprived quintile grew following the lockdown, from 1.14 to 1.47 (Mateo-Urdiales et al., 2021[64]). • In the United Kingdom, the COVID-19 death rate was 2.2 times higher in England in the most deprived areas compared to the least deprived areas between March and July 2020 (ONS, 2020[55]). Between March and May 2020, males in the most deprived quintile in England had death rates 2.3 times higher than those in the least deprived quintile, while females in the most deprived quintile had death rates 2.4 times higher than females in the least deprived quintile (Public Health England, 2020[65]). • In the United States, the most disadvantaged counties consistently reported higher death rates than more advantaged counties (Chen and Krieger, 2020[66]). A 5% increase in poor housing conditions per county was associated with a 42% increase in relative risk of mortality from COVID-19 (Ahmad et al., 2020[67]).
Income	<ul style="list-style-type: none"> • In Belgium, excess mortality among men and women in the lowest income decile was twice as high as that of people in the highest income decile (Decoster, Minten and Spinnewijn, 2020[56]). • In Korea, lower socio-economic status was associated with a 19% increase in the risk of infection with COVID-19 compared with higher socio-economic status (Oh, Choi and Song, 2021[68]). The mortality rate for recipients of Medical Aid was seven times higher than for National Health Insurance Service beneficiaries (Lee et al., 2021[69]). • In Luxembourg, COVID-19 cases among low-income groups were more than one-third (37%) higher than among high-income groups, though deaths per population were higher among the high-income group (Berchet, forthcoming[70]). • In the Netherlands, the relative mortality risk from COVID-19 was twice as high among households in the lowest income group, compared to households in the highest income group (Statistics Netherlands, 2021[71]). • In Sweden, men in the lowest income tertile experienced about 75% higher mortality than men in the highest income tertile, while women in the bottom income tertile experienced 26% higher mortality than women in the highest income tertile (Drefahl et al., 2020[57]).

Table 2.1. Impact of socio-economic and demographic inequalities on COVID-19 outcomes, selected studies (cont.)

SES indicator	COVID-19 outcomes
Education	<ul style="list-style-type: none"> ● In Germany, people with low educational attainment were at a higher risk of developing severe COVID-19: 69.8% were at a higher risk of severe COVID-19, compared with 40.9% of those with high educational attainment. ● In Belgium, older adults who did not finish primary school experienced mortality rates from COVID-19 nearly 40% higher than those who had completed higher education (Decoster, Minten and Spinnewijn, 2020[56]). ● In Sweden, men and women with primary educational attainment had COVID-19 mortality rates 24% and 51% higher than men and women who had completed post-secondary education, while men and women with secondary educational attainment had mortality rates 25% and 38% higher than those who had completed post-secondary schooling (Drefahl et al., 2020[57]). The impact of education was stronger among younger populations and women at all ages (National Board of Health and Welfare, 2021[73]).
Ethnicity	<ul style="list-style-type: none"> ● In Brazil, the mortality risk from COVID-19 was 1.5 times higher among the black population, despite a higher incidence rate among the white population, and Black and Pardo Brazilians admitted to hospital were at a 1.3-1.5 times higher risk of mortality compared with white Brazilians (Martins-Filho et al., 2021[58]). ● In Canada, the mortality rate from COVID-19 in communities with the highest proportion of visible minorities was about twice as high as in communities with the lowest proportion (Subedi, Greenberg and Turcotte, 2020[74]). ● In Mexico, Indigenous people had higher odds of dying than non-Indigeneous people, with hospitalised Indigenous patients at 1.13 times higher risk of dying of COVID-19 than non-Indigenous patients (Ibarra-Nava et al., 2021[75]). ● In New Zealand, the odds of more severe outcomes were more than twice (2.15) as high for people of Asian ethnicity, and nearly three (2.76) times as high for people of Pacific ethnicity, compared with those of European and other ethnicity (Jefferies et al., 2020[76]). ● In the United Kingdom, black African males had a COVID-19 mortality rate 3.7 times higher than that of white British males during the first wave of the pandemic. During the second wave, ethnic minorities remained at an elevated risk of dying, but differences for most groups (excluding people of Bangladeshi and Pakistani descent) were smaller than during the initial wave of the pandemic (ONS, 2021[77]). ● In the United States, the risk of hospitalisation for COVID-19 was 2.8-3.5 times higher, and the risk of mortality 2.0-2.4 times higher, for American Indian, Native Alaskan, Hispanic, Latino, Black and African-American people compared with non-Hispanic white residents (Centers for Disease Control and Prevention, 2021[78]).
Migration	<ul style="list-style-type: none"> ● In Denmark (capital region), immigrants from non-European countries and their descendants had 26% of all COVID-19 infections, despite representing just 13% of the population in the region (Statens Serum Institut, 2020[79]). ● In France, mortality among those born in France increased by 22% in March-April 2020 compared with the same period in 2019, but by 54% among those born in the Maghreb, 91% among those born in Asia, and 114% among those born in non-Maghreb African countries (Papon and Robert-Bobée, 2020[80]). ● In Italy, people from countries with a low Human Development Index (HDI) were 1.39 times more likely to be hospitalised, and 1.32 times more likely to die, than people born in Italy (Fabiani et al., 2021). ● In Luxembourg, people born abroad were 1.18 more likely to be infected with COVID-19, though excess mortality among foreign-born residents was 57% that of the Luxembourg-born population (Berchet, forthcoming[70]). ● In Norway, COVID-19 hospital admission rates were three times higher for people born outside of the country (and more than 15 times higher for individuals born in Pakistan and Somalia), compared with those born in Norway (NIPH, 2021[59]). ● In Sweden, excess mortality between March and May 2020 among those aged 65 and over was more than ten times higher among immigrants from Iraq, Somalia and Syria (220%), compared to those born in Sweden, Europe, or North America (Hansson et al., 2020[81]). The mortality risk from COVID-19 for people from the Middle East and Northern Africa was more than 3 times higher for males and 2 times higher for females, compared with people born in Sweden (Drefahl et al., 2020[57]). ● In the United Kingdom, excess mortality rose more dramatically among people born outside the country than those born within it. Compared with the average of recent years, deaths between March and May 2020 were 1.7 times higher among those born in the United Kingdom, but more than three times higher among individuals born in Eastern and Southern Africa, the Middle East, Southeast Asia and the Caribbean, and 4.5 times higher among migrants from Central and Western Africa (Public Health England, 2020[65]).

The impact of socio-economic disparities on COVID-19 infection and outcomes has evolved over the course of the pandemic. Evidence from Austria, Germany and New Zealand suggests that in many cases the pandemic began in communities of higher socio-economic status, but over time shifted to impact harder communities of lower socio-economic status (Wachtler et al., 2020[62]; Hoebel et al., 2021[63]; The Austrian National Public Health Institute, 2021[83]). In the United Kingdom (England), socio-economic disparities in outcomes were particularly dramatic during the first peak of the pandemic, but have somewhat attenuated for certain groups, including people of Black Caribbean and Black African descent (ONS, 2021[77]).

In addition to COVID-19 health outcomes there is some evidence that the speed of vaccination rollout also varied across population groups. In France, those living in the most deprived areas had consistently lower vaccination rates than those living in the least deprived areas, across all age groups, by end of September 2021; and this difference was most pronounced in the age group 20-39 (67% vs 81% with at least partial coverage) (Assurance Maladie, 2021[84]). In the United States, the CDC data tracker highlighted lower full vaccination coverage among the black population compared to whites or those of Asian ethnicity in mid-October 2021 (CDC, 2021[85]).

Health and long-term care workers were hard hit by the pandemic early on, and wider effects on their well-being may have lasting impacts

Health and LTC workers have been on the frontline throughout the COVID-19 pandemic, and much more exposed to the virus than other professions. In particular, those working in inpatient facilities and nursing homes have been found to be at the highest risk (Nguyen et al., 2020[86]). The impact on health and LTC workers was most acute in 2020, due to a lack of adequate PPE early in the pandemic. Based on limited data submitted by countries in their “Case Report Forms”, WHO reports that health workers represented 8% of all COVID-19 cases in 2020 globally⁶ (WHO, 2021[87]). This share was around 10% in the first three months of the pandemic but declined to 2.5% as of September 2020. Among the dozen OECD countries where epidemiological monitoring reports were accessible, Mexico is the country where health workers have been most affected. By late September 2021, more than 278 000 infected health workers were reported in the country with more than 4 400 deaths (Gobierno de México, 2021[88]). Health workers represent around 8% of all recorded infections and close to 2% of all reported COVID-19 casualties in the country. By comparison, in the Netherlands, the share of health workers among all recorded infections is similar (10%) but they account for a much lower proportion of all deaths (0.2%) (RIVM, 2021[89]). Data should be interpreted cautiously, though, particularly when comparing across countries, notably due to differing testing capacities and definitions of health workers.

The pandemic has also affected the next generation of health workers, which may be felt by health systems in the years to come. Medical studies have frequently been disrupted, with in-person classes moving online and clinical experience in some cases cancelled to reduce the risk of infection among students (Ferrel and Ryan, 2020[90]). Postponements of clinical rotations in hospitals for students may create waiting lists and backlogs for medical students to specialise, as has already been reported in Costa Rica.

The impact of the pandemic on the personal health of health workers went frequently beyond the higher likelihood of COVID-19 infection. Sustained pressure due to high workloads further affected the well-being of many health and social care workers, with reported high rates of poor mental health, burn-out, anxiety, depression and stress (Box 2.2) (Greenberg et al., 2020[91]; Heesakkers et al., 2021[92]; Denning et al., 2021[93]).

Health and LTC workers were prioritised in vaccination campaigns in all countries to protect themselves and their patients. Yet vaccination progress has been slow for some health occupations in some countries. In the United States, research has found that as of March 2021 while 75% of

physicians in LTC facilities were already fully vaccinated, rates were much lower among nurses (57%) and aides (46%) in the same settings (Lee et al., 2021[94]). Similar findings were observed in France, where by mid-July 2021 doctors (76%) were more likely to be at least partly vaccinated than nurses (62%) or nursing aides (55%) (Santé Publique France, 2021[95]). To improve the uptake of vaccination a number of countries including France and Italy have mandated the compulsory vaccination of health workers.

Box 2.2. Caring for COVID-19 patients has impacted the mental health of health care workers

The mental health impact of the pandemic has been particularly hard for the doctors, nurses, long-term care workers, and other health care workers working in close proximity to patients. Healthcare workers have reported high rates of anxiety, depression, burnout, and turnover since the onset of the pandemic. In a survey of the workforce across the European Union, 70% of workers in the health sector – more than any other sector of the workforce – report that they believed their job put them at risk of COVID-19 infection (Eurofound, 2020[96]).

- In a March 2020 survey of health care workers in **Italy**, close to half (49%) exhibited symptoms of post-traumatic stress syndrome and one-quarter symptoms of depression. Frontline workers had significantly higher odds of exhibiting post-traumatic stress syndrome than those who did not report working with COVID-19 patients (Rossi et al., 2020[97]).
- An April 2020 survey of health care professionals in **Spain** found that close to three-fifths of respondents reported symptoms of anxiety (59%) and/or post-traumatic stress disorder (57%), with close to half (46%) exhibiting symptoms of depression (Luceño-Moreno et al., 2020[98]).
- In England (**United Kingdom**), nearly half of respondents to the NHS staff survey (44%) reported feeling unwell due to work-related stress over the previous year, a 9% increase from 2019 (NHS, 2021[99]).
- In the **United States**, a survey of frontline health workers found that more than three-fifths (62%) reported that the stress or worry over COVID-19 affected their mental health negatively, and close to half (49%) reported that the stress had affected their physical health (Kirzinger et al., 2021[100]). Almost one-third of respondents reported needing or having received mental health services due to the pandemic (Kirzinger et al., 2021[100]).
- There is some evidence suggesting that nurses may have experienced more negative mental health impacts from the pandemic than doctors (De Kock et al., 2021[101]). A survey of 33 national nursing associations (NNAs) found that three-fifths reported sometimes or regularly receiving reports from nurses about mental health distress linked to the pandemic (International Council of Nurses, 2020[102]).

The longer-term impacts of COVID-19 on health systems and society are still emerging

The need to prepare for and accommodate the onslaught of COVID-19 patients severely disrupted and tested health systems over the course of the pandemic. Patients with other health care needs have seen their access to services reduced. Fear of the pandemic and the social distancing policies implemented to contain the virus have had an impact on the mental well-being of many people, in particular young people and health workers. At the same time, measures to limit the spread of the virus also had some positive “side-effects” on some health outcomes (Box 2.3).

Box 2.3. Public health measures to limit the spread of the SARS-CoV-2 virus and associated behavioural changes also had some positive effects on health

To slow down the spread of the SARS-CoV-2 virus OECD countries deployed a wide range of containment and mitigation policies, including social distancing, compulsory wearing of face coverings in many public places, travel

Box 2.3. Public health measures to limit the spread of the SARS-CoV-2 virus and associated behavioural changes also had some positive effects on health (*cont.*)

restrictions, closures of schools and non-essential businesses and implementation of curfews and full lock-downs. These measures contributed to positive effects on some health outcomes:

- Schranz et al. found for Germany a **reduction of notified infections** for measles (-86%), malaria (-73%) and HIV (-22%) and other infectious diseases between March and July 2020, compared to the same time period in 2019 (Schranz et al., 2021[103]), likely to be related to social distancing measures.
- In the European Union, **road traffic deaths decreased** by 17% (or 4 000 fewer deaths) in 2020 compared to 2019 (European Commission, 2021[104]).
- The COVID-19 pandemic increased awareness of infectious diseases overall and in many countries this will have contributed to an increase in the **uptake of influenza vaccination** for the populations at risk. In Italy, the share of those aged 65 and over getting vaccinated increased from 54.6% to 65.3% in flu season 2020-21 compared to the previous season (Ministero della Salute, 2021[105]). In England, this proportion increased from 72.4% to 80.9% (Public Health England, 2021[106]).
- **Air quality improved** in many parts of the world in 2020. In South Asia and South America, for example, mean PM2.5 concentration (fine particles which can cause severe health effects since they can penetrate deep into the respiratory tract) dropped by around 30-40% during full lock-down compared with the same periods in 2015-19 (WMO, 2021[107]).

The mental health impact has been enormous

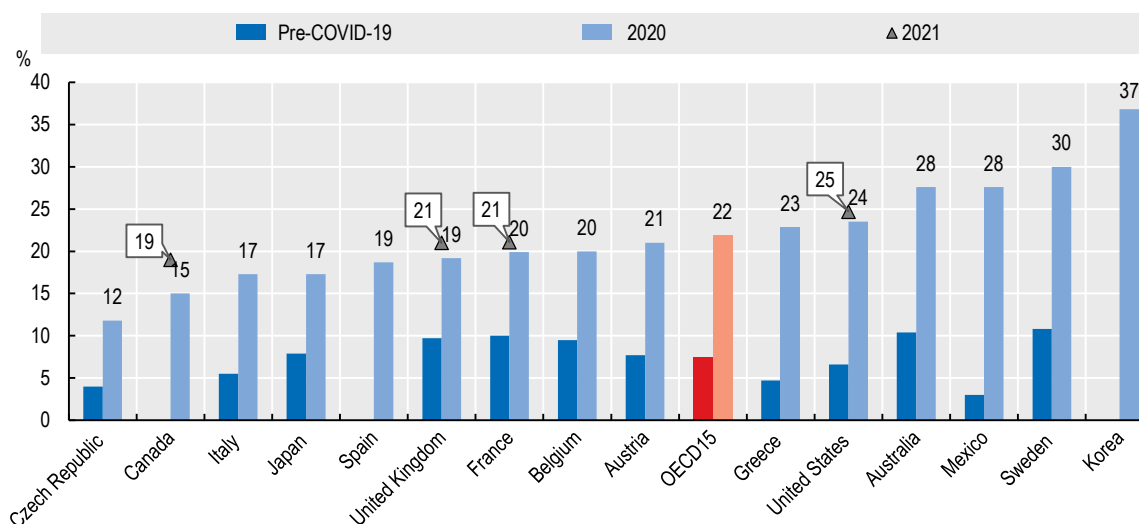
The COVID-19 crisis has had a significant and negative impact on population mental health. Throughout the pandemic, the risk factors for poor mental health – financial insecurity, unemployment, and fear – have increased. At the same time, protective factors – social connection, employment and educational engagement, access to physical exercise, daily routine, and access to health services – have decreased. In many countries, population mental distress increased when the first impacts of the COVID-19 crisis were felt in March-April 2020, including the rise in infections, hospitalisations, deaths, social distancing and other measures such as school and workplace closures.

- The prevalence of anxiety and depression in early 2020 was double or more the level observed in previous years in a number of countries, including Belgium, France, the United Kingdom and the United States (Figure 2.12) (OECD, 2021[108]).
- A survey by the Commonwealth Fund in August 2020 found that at least 10% of adults reported experiencing stress, anxiety, or great sadness that was difficult to cope with alone, since the outbreak started (Commonwealth Fund, 2020[109]).

As the crisis has continued, the impact on population mental health has not been stable. A correlation between increases in mental distress, the strictness of lockdown measures, and increases in COVID-19 cases and deaths can be observed across multiple countries.

- In France, the United Kingdom, and the United States, prevalence of symptoms of anxiety and depressions increased during periods when there were peaks in COVID-19 infections and deaths, and when there were increased containment measures in place (Santé Publique France, 2021[110]; Public Health England, 2021[111]; National Center for Health Statistics, 2021[112]).
- In the Netherlands, participants in a study tracking mental health across the pandemic reported the poorest mental health status in the first two quarters of 2021 (CBS, 2021[113]). In Australia, cases of COVID-19 saw peaks at the start of the pandemic in March 2020, again in August 2020, and during the summer period in 2021.
- One in five Australians reported high or very high levels of mental distress in June 2021 (20%), with similar levels in March 2021 (20%) and November 2020 (21%) (Australian Institute of Health and

Figure 2.12. **National estimates of prevalence of depression or symptoms of depression amongst adults pre-COVID-19, 2020 and 2021**



Note: To the extent possible, 2020 prevalence estimates were taken from March-April 2020, and 2021 estimates were taken from March-April 2021. The survey instruments used to measure depression and population samples differ between countries and in some cases across years, which limits direct comparability. Most national surveys cover the adult population over age 18. Source: National data sources reported in OECD (2021[108]), "Tackling the mental health impact of the COVID-19 crisis: An integrated, whole-of-society response", <https://doi.org/10.1787/0ccafa0b-en>.

Welfare, 2021[114]). Levels of mental distress were also higher in States that were most affected by COVID-19 cases and lockdown measures (ibid).

- A EUROFOUND survey measuring mental well-being in EU countries found that risk of depression was highest amongst all age groups in early 2021 than at any other stage of the crisis up to that date (Eurofound, 2021[115]).

Mental distress was particularly felt by socially disadvantaged groups and young people

Some population groups' mental health has been particularly affected by the COVID-19 crisis, specifically people with less secure employment, lower educational status, lower income and young people.

In the United Kingdom, for example, higher anxiety scores were consistently reported amongst people with lower education or lower income in the 20 weeks since March 2020 (Fancourt, Steptoe and Bu, 2021[116]). However, trends in changing mental health status and socio-economic status (SES) are not consistent across all populations. It has been difficult to assess whether the mental health of people of lower SES has worsened faster or more compared to population averages. For example, in the United States, an April 2020 survey found persons with higher SES reported sharper declines in life satisfaction and bigger increases in depressive symptoms than people with lower SES compared to survey results in 2019.

Self-reported mental health issues are also more prevalent among young people compared to other age groups across many OECD countries (OECD, 2021[117]). The higher share of young people experiencing anxiety and depression is not consistent with data from recent years, and suggests that the mental health of young people has been disproportionately affected during the COVID-19 crisis. In 2014, the proportion of 15-24 year-olds reporting chronic depression was

estimated at 3.6% across the European Union, which is much lower than among the general population (6.9%) (Eurostat, 2014[118]).

- Data from Belgium, France and the United States show that prevalence of symptoms of anxiety and depression was around 30% to 80% higher among young people than the general population in March 2021.
- In Canada, a survey in May 2020 found that 27% of 15-24 year-olds were experiencing moderate to severe symptoms of anxiety, significantly above the 19% share among 25-64 year-olds (Statistics Canada, 2020[119]).
- In Japan, 31% of 20-29 year-olds were experiencing symptoms of depression, compared to 18% of older adults, based on survey responses from July 2020 (Fukase et al., 2021[120]).

The COVID-19 crisis disrupted delivery of mental health services globally. A WHO survey in the second quarter of 2020 found that more than 60% of countries worldwide reported disruptions in mental health services (WHO, 2020[121]). Some signs point to both increased demand for mental health support in OECD countries, and an increase in unmet need for mental health care. In a Commonwealth Fund survey conducted between March-May 2020, among those reporting a need for mental health care, 68% of adults in the United Kingdom and 69% of adults in the United States reported not being able to obtain such care (Commonwealth Fund, 2020[109]). In the Netherlands, during the first lockdown in 2020 there was a decrease in demand for GP care for anxiety and depressive disorders, and the rate of GP contacts remained lower than in previous years even after the relaxation of lockdown measures. However, during the second lockdown starting December 2020, there was an increase in the demand for care for depressive and anxiety disorders (NIVEL, 2021[122]).

Containment measures led to some increase in unhealthy lifestyle behaviours and domestic violence

The containment and mitigation policies implemented across most countries have had a detrimental impact on lifestyles for many. Such lifestyle changes can have lasting consequences on people's health.

- While no significant change in alcohol consumption was reported between 2019 and 2020 in four of the five OECD countries with available data, a recent OECD analysis on the impact of the COVID-19 pandemic on people's drinking habits found that a larger proportion of people increased the frequency of drinking (OECD, 2021[123]). Among those with the greatest increase in alcohol consumption were women, parents of young children, people with higher income and those with anxiety and depressive symptoms.
- Recent research also tentatively suggests a decrease in physical activity and an increase in sedentary behaviour during lockdowns (Stockwell et al., 2021[124]).
- The impact of the pandemic on smoking appears to be mixed, with some smokers increasing their daily consumption of cigarettes, but others – notably older persons, as in France and Japan – reducing consumption, possibly due to the association between smoking and worse COVID-19 outcomes (see Chapter 4).

The containment and mitigation policies undertaken by many countries severely restricted movement and often confined people to their homes for extended periods of time. These restrictions limited the ability of many, especially women and children, to leave abusive homes, seek external help, or be proactively helped by others, and appears to have contributed to significant increases in the frequency and severity of domestic violence against women and children in many countries.

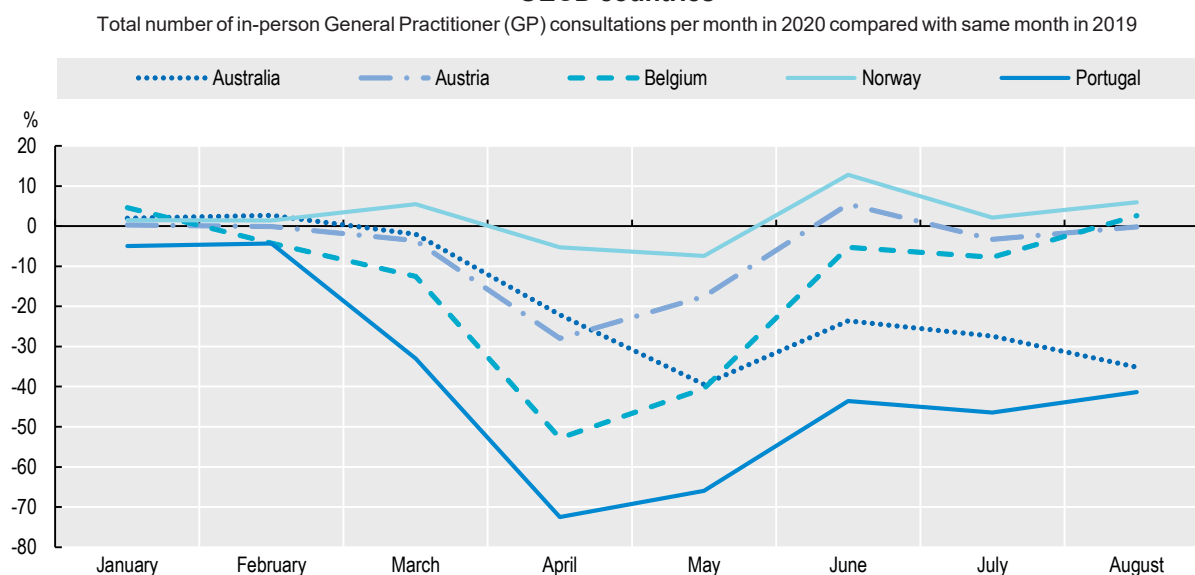
In France, official estimates indicate that domestic violence reports surged by more than 30% in the first ten days of the March 2020 lockdown, while reports from Canada, Germany, Spain, the

United Kingdom and the United States indicated that the need for emergency shelter grew during the pandemic as domestic violence increased (UN Women, 2020[125]). In London (United Kingdom), Metropolitan Police reported that between mid-March and mid-June 2020, domestic abuse increased by 16% by family members and by nearly 9% by current partners, but declined by 9% among former partners (Suleman et al., 2021[126]). While data from one metropolitan region cannot be extrapolated to the country, the trend in increasing domestic abuse by current partners and family members, and declining abuse from former partners, underscores the impact that restrictions on movement related to COVID-19 have likely had on domestic violence.

Key in-person primary care services declined in the second quarter of 2020 but telemedicine use rose steeply

During the initial phase of the COVID-19 pandemic, tightening restrictions across health and other sectors meant that many essential health services were postponed or foregone entirely. In-person primary care consultations dropped, with the number of consultations with general practitioners falling 66% in Portugal, about 40% in Australia, 18% in Austria and 7% in Norway in May 2020, compared with the same month in 2019 (Figure 2.13). Australia's continued decline in face-to-face GP consultations in July and August 2020 likely reflects the trajectory of the pandemic in the country, where cases peaked in the Southern hemisphere during the winter months of July and August 2020. Preliminary data from eight OECD countries indicate that in-person doctor consultations fell in all but one country in 2020 (see Chapter 5). Data on in-person consultations should be interpreted with caution, as in many countries a decline in in-person visits was at least partly offset by an expansion of telehealth services.

Figure 2.13. **Monthly change in total number of in-person GP consultations, 2020 vs 2019, selected OECD countries**

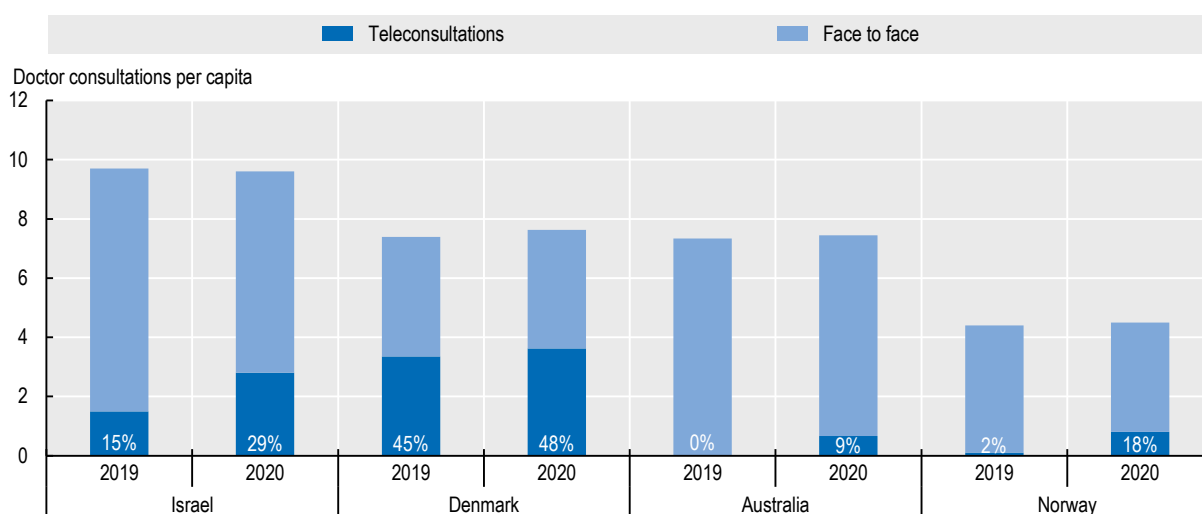


Note: Data exclude telehealth services and only refer to face-to-face consultations and home visits.

Source: Australian Institute of Health and Welfare (2020[127]), "Impacts of COVID-19 on Medicare Benefits Scheme and Pharmaceutical Benefits Scheme service use", <https://www.aihw.gov.au/reports/health-care-quality-performance/covid-impacts-on-mbs-and-pbs/data>; Helsedirektoratet (2020[128]), "Konsultasjoner hos fastleger", <https://www.helsedirektoratet.no/statistikk/statistikk-om-allmennlegetjenester/konsultasjoner-hos-fastleger>; INAMI (2020[129]), "Monitoring COVID-19: L'impact de la COVID-19 sur le remboursement des soins de santé", <https://www.inami.fgov.be/fr/publications/Pages/rapport-impact-covid19-remboursement-soins-sante.aspx>; Leitner (2021[130]), "Number of e-Card consultations: Analysis of eCard consultations during the pandemic/during the lockdown in 2020", Serviço Nacional de Saúde (2021[131]) "Consultas Médicas nos Cuidados de Saúde Primários", <https://transparencia.sns.gov.pt/explore/dataset/evolucao-das-consultas-medicas-nos-csp/export/?sort=tempo>.

Full-year data from four countries indicate that the number of doctor consultations (from both General Practitioners and specialists) per capita did not markedly change between 2019 and 2020 in some countries (Figure 2.14). In Australia, Israel, and Norway, a rise in the number of teleconsultations per capita helped make up for a decline in in-person visits. In general, teleconsultation services have expanded in all countries (Box 2.4). While the pandemic clearly pushed the uptake of telehealth services, the extent to which teleconsultations were able to compensate for the declines in in-person visits across a wider set of countries is not yet clear. As with the uptake of other digital tools, the use of digital technologies for health has not been evenly distributed across the population, with certain groups – including older adults, those with lower incomes, and people with lower educational attainment – less likely to seek out health information online (see Chapter 5). While telemedicine can help to overcome certain access barriers – such as for people living in remote communities – it is possible that the uptake of digital services during the pandemic may also exacerbate certain inequalities that preceded the pandemic.

Figure 2.14. Doctor consultations (in all settings) per capita, 2019 and 2020



Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>; OECD ad-hoc data collection on teleconsultations 2021.

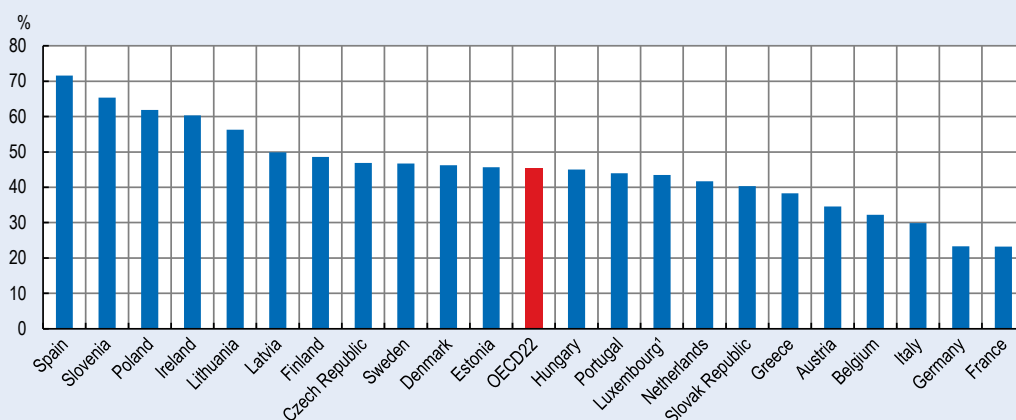
Many patients living with chronic conditions encountered serious disruptions in in-person care during the pandemic. Two studies surveying disruptions in care for chronic conditions, covering 163 and 47 countries respectively, both found hypertension and diabetes to be the two conditions most disrupted or impacted by COVID-19 (Chudasama et al., 2020[132]; WHO, 2020[133]). In Portugal, for example, the number of foot exams for diabetes care declined by 24% between 2019 and 2020, while in a nationally representative sample in the United States, two-fifths of adults living with at least one chronic health condition reported to have delayed or forgone care during the pandemic (Gonzalez et al., 2021[134]; Serviço Nacional de Saúde, 2021[135]).

A temporary disruption of service use can also be observed with childhood vaccination. Brazil recorded a 20% decline in childhood vaccination coverage in April-May 2020 compared with January-February 2020, while the United Kingdom recorded a 7% drop in hexavalent vaccination and a 20% drop in MMR in the three weeks following the introduction of social distancing measures, compared with the same period in 2019 (McDonald et al., 2020[139]; Silveira et al., 2021[140]). Yet coverage data from countries with data availability for the full year, including Belgium, Greece and Ireland, indicate that there was little overall change in coverage for key immunisations such as measles in 2020 compared with 2019 (WHO, 2021[141]). In England, for example, 12-month coverage for the

Box 2.4. Widespread use of telehealth services

Across 22 OECD European countries, close to half (45%) of adults reported by February-March 2021 that they had received medical consultation services from a doctor either online or by telephone (Figure 2.15). In Canada, 47% of respondents reported having used telehealth services to receive advice from a doctor since the start of the pandemic in May 2020 (Canadian Medical Association, 2020[136]). In Australia, one in seven adults in April 2021 had used a telehealth service (including making online bookings, e-Prescriptions, and consulting health information online) over the four preceding weeks (Australia Bureau of Statistics, 2021[137]). In Costa Rica, one-third of consultations in 2020 took place via teleconsultation, with a similar proportion (34%) reported for the first eight months of 2021.

Figure 2.15. **Nearly half of adults across 22 OECD EU countries reported having an online or telephone consultation during the pandemic**



Note: Proportion of respondents who reported having received online health care (medical consultation online or by telephone) from a doctor since the start of the pandemic. Results based on an online survey, may not be representative of the entire population. 1. Data for Luxembourg is of low reliability.

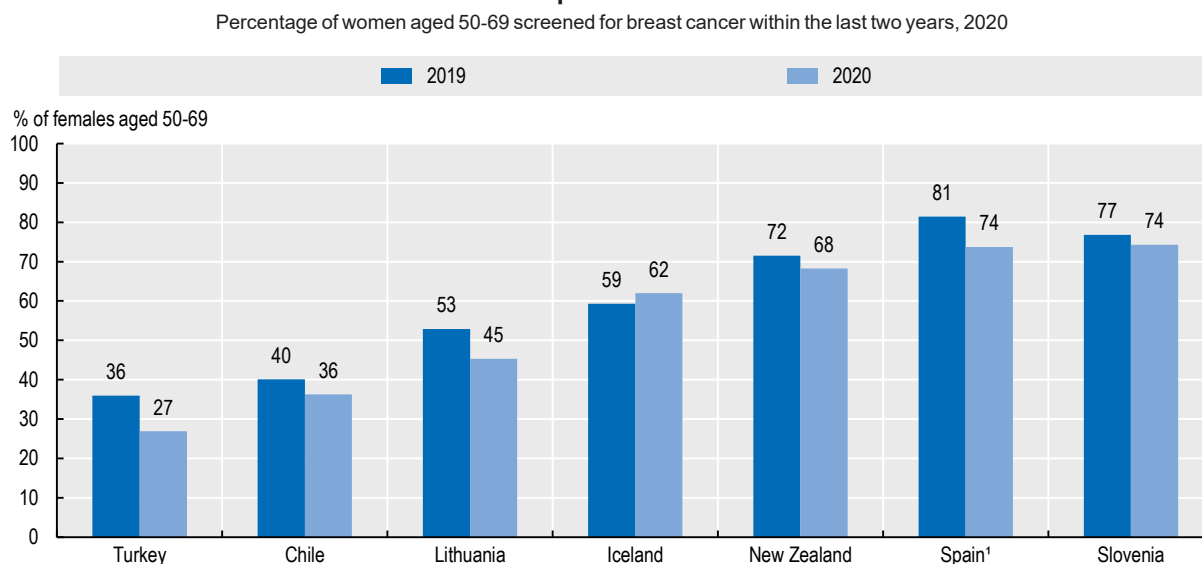
Source: Eurofound (2020[138]), "Living, working and COVID-19 dataset", <https://www.eurofound.europa.eu/fr/data/covid-19/quality-of-public-services>.

hexavalent vaccination dropped by just 0.1% in 2020 compared to 2019 (Public Health England, 2021[142]). This suggests that in most OECD countries, any delays in ensuring children were vaccinated according to the recommended schedule were short-lived and without a lasting impact on coverage. The impact on immunisation campaigns in low- and middle-income countries is likely to be much more significant, with possibly important negative consequences for child health outcomes and the spread of vaccine-preventable diseases.

Many countries experienced initial declines in cancer screening, which risk worsening health outcomes over time

Preventive screening for cancers, including mammography and colonoscopy, represents an important component of prevention programmes, with earlier cancer detection strongly associated with higher survival rates (see Chapter 6). Data indicate that cancer screening and referral were significantly delayed during the pandemic. Across seven OECD countries with comparable annual data, the proportion of women screened for breast cancer within the last two years fell by an average of 5 percentage points in 2020, compared with 2019 (Figure 2.16).

Figure 2.16. **The proportion of women screened for breast cancer within the last two years fell in 2020 compared to 2019**



1. Spain is based on survey data with the comparator year being 2017 instead of 2019. All other countries based on programme data.
Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>.

The decline in preventive cancer screenings was particularly acute during the initial months of the pandemic:

- In Italy, screening rates for breast cancer (-54%) and cervical cancer (-55%) fell substantially between January and May 2020 compared to the same period in 2019, and remained lower for the full year as compared to 2019 (OECD/European Observatory on Health Systems and Policies, forthcoming[143]).
- Screenings for colorectal cancer dropped by 58% in the Czech Republic in April 2020, and by 34% in Austria between January and July 2020, compared to the same months in 2019 (OECD/European Observatory on Health Systems and Policies, forthcoming[144]).
- In Australia, screening for breast cancer among women aged 50-69 fell by 20% between January and September 2020, compared to the same months of 2018. The decline was particularly large between March and May 2020, when BreastScreen services were paused (Australian Institute of Health and Welfare, 2021[145]). However, weekly screening between end-July and mid-September 2020 exceeded the numbers performed during the corresponding weeks of 2018, suggesting that any declines related to the pandemic are likely temporary.
- In France, breast cancer screening dropped markedly in the second quarter of 2020 (-56% compared to Q2/2019). From September onwards, though, screening activity exceeded levels seen in previous years, with weekly screening in January and May 2021 13% above corresponding numbers in 2019 (OECD/European Observatory on Health Systems and Policies, forthcoming[146]).

Delays and reductions in cancer screening have a negative impact on mortality due to associated delays in cancer diagnosis. Delays in cancer diagnosis and access to diagnostic services during the pandemic were reported in many OECD countries, including Australia, Belgium, Canada (Ontario), Denmark, Finland, France, Ireland, Italy, Korea, the Netherlands, Slovenia and Sweden. Delaying surgical treatment for cancer by four weeks has previously been estimated to increase the risk of

death by about 7%, while a delay of systemic therapy (such as chemotherapy) or radiotherapy by four weeks may increase the risk of death by up to 13% (Hanna et al., 2020[147]).

- Data from Australia indicate that the pandemic introduced disruptions to cancer care beyond preventive screening programs. Compared with the same period in 2019, surgeries related to breast cancer fell by 6% between January and September 2020, with colorectal surgeries also declining by 4% over this period. The most notable decreases for surgical procedures occurred in the early months of the pandemic (Cancer Australia, 2020[148]). Diagnostic procedures for suspected cancers also declined at the start of the pandemic.
- In Belgium, as a result of disruption in cancer care during the pandemic, the number of new cancer diagnoses between March and September 2020 was 5 000 below what would normally have been expected (Belgian Cancer Registry, 2020[149]).
- During the first half of 2021 in the Netherlands, the number of new cancer diagnoses was 6% higher than the average in the corresponding period for 2017-19, in line with expected increases due to demographic trends. The increase in diagnoses may also reflect a catch-up effect from diagnoses that were not made in 2020 (Netherlands Comprehensive Cancer Organisation, 2021[150]).

Emerging evidence has begun to indicate the substantial impact delays in screening and diagnosis may have on survival. In the United Kingdom (England), diagnostic delays have been projected to increase five-year mortality for four types of cancer by about 5% (lung cancer) to 16% (colorectal cancers) (Maringe et al., 2020[151]).

With non-urgent elective surgeries postponed during the pandemic, waiting times increased and surgeries declined

To increase health systems' capacity and address the COVID-19 surge, many countries postponed non-urgent elective surgeries. As a consequence, the amount of time patients spent on waiting lists for many surgeries increased. Across seven OECD countries with available data, waiting times for three elective surgeries – cataract surgery, hip replacement surgery, and knee replacement surgery – all increased across each country in 2020 compared with 2019 (Figure 2.17). For patients on waiting lists for surgery, the median number of days spent on the waitlist before undergoing the procedure increased in 2020 by 88 days for knee replacement, 58 days for hip replacement, and 30 days for cataract surgery, compared to 2019.

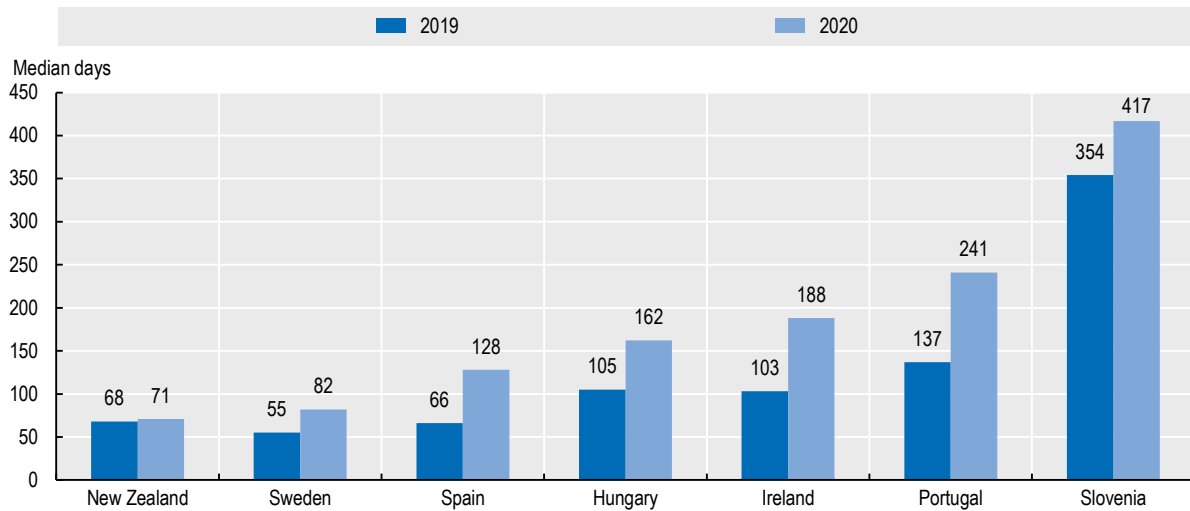
The number of elective surgeries requiring inpatient stays, such as hip or knee replacements, dropped in many countries in 2020, with declines of more than 25% in the number of knee replacements in the Czech Republic and Italy (Figure 2.18). Similar declines were also observed for hip replacement and cataract surgery (see Chapter 5).

While the first months of the pandemic have had the greatest impact on increasing waiting times and reducing completed treatment pathways, subsequent peaks in COVID-19 hospitalisations have also further disrupted care but to a lesser extent. In the United Kingdom, for example, treatment activity fell dramatically between March and May 2020, before falling again between November 2020 and January 2021 – though far less than during the initial drop (The Health Foundation, 2021[152]). Addressing the backlog of patients with need for elective intervention will be challenging, particularly in countries which have more limited hospital capacity, and may require sustained additional resources.

Overall inpatient hospital activity has also decreased, particularly for cardiac care

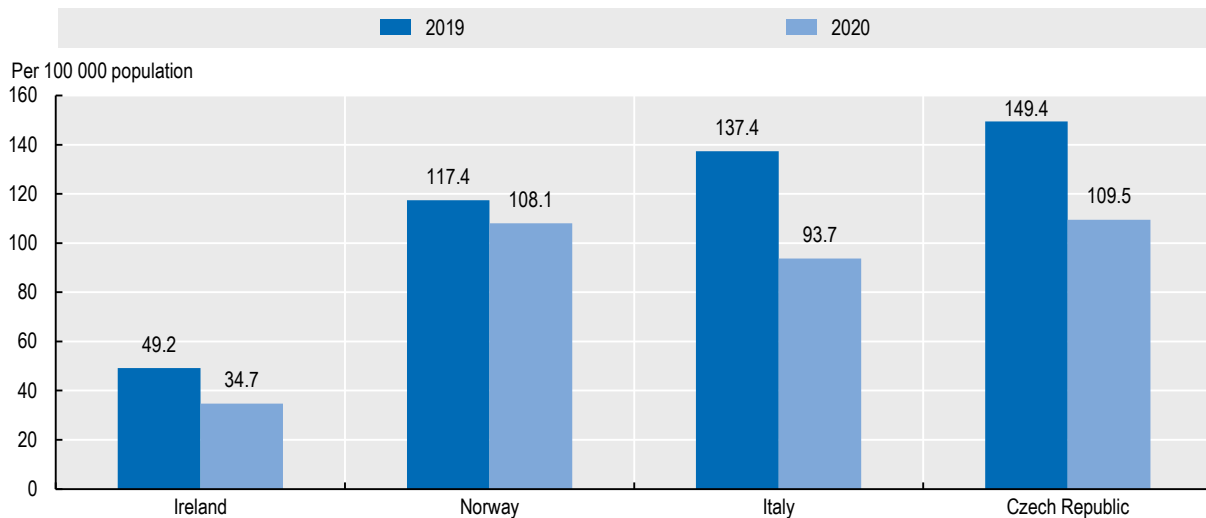
In anticipation of and responding to COVID-19 patients needing hospital-based care, many countries increased the number of available hospital beds by redesigning hospital discharge policies and postponing planned admissions for non-urgent care. As a result, across five OECD countries with

Figure 2.17. **Waiting times of patients on the list for hip replacement surgery increased during the pandemic**



Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>.

Figure 2.18. **Knee replacement surgery, selected OECD countries, 2019-20**

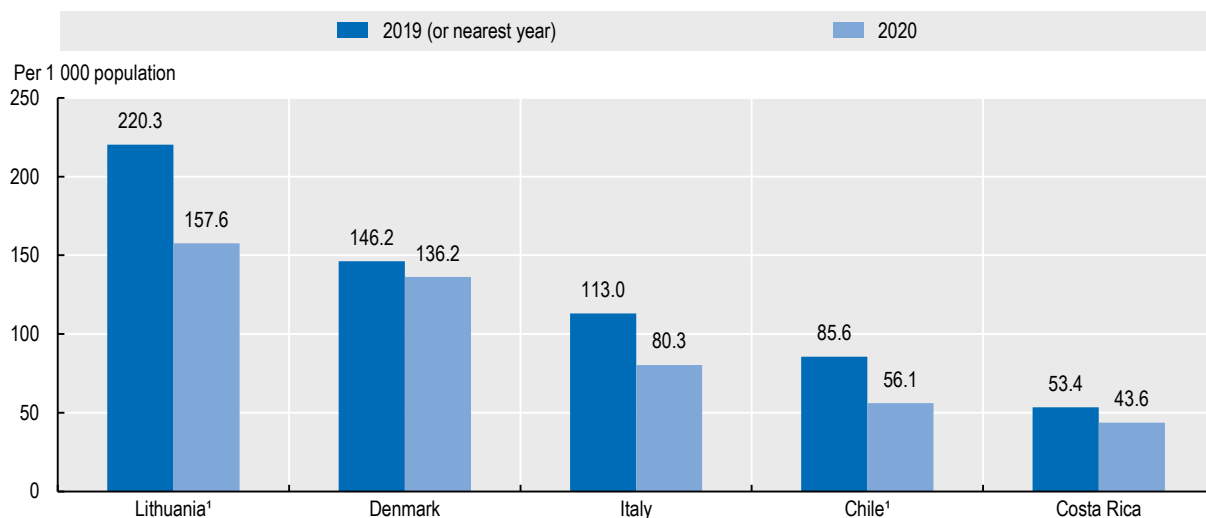


Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>.

available data, overall inpatient admissions fell in all countries between 2019 and 2020, with reductions ranging from about 7% in Denmark to about 30% or more in Lithuania, Italy and Chile (Figure 2.19).

Many OECD countries also observed declines in emergency visits and admissions. Overall, emergency attendance declined in 2020 by more than 20% in Canada (24%), Portugal (28%) and the United Kingdom (England) (21%) compared to 2019 (Canadian Institute for Health Information, 2021[153]; Serviço Nacional de Saúde, 2021[154]; NHS, 2021[155]). Drops in activity were particularly pronounced in March and April 2020. In the Netherlands, emergency room visits declined by 25% from March to June 2020, while emergency visits due to injuries fell by 14% in 2020, compared to 2016 (Stam and Blatter, 2021[156]; Toet, Sprik and Blatter, 2020[157]). Comparing the time period

Figure 2.19. Hospital discharge rates, 2019 vs 2020



1. Excludes discharges of healthy babies born in hospital (3-10% of all discharges).

Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>.

July 2019 to June 2020 with July 2018 to June 2019, the reduction in emergency visits was smaller in Australia (-1.4%) (Australian Institute of Health and Welfare, 2021[158]). Nonetheless, a substantial decline in average daily visits (-38%) could be observed between early March and early April 2020 compared to the corresponding weeks in 2019.

Visits for cardiac and cerebrovascular events fell, with some evidence of worse outcomes.

- Data from the first months of the health crisis indicate that hospital admissions for cardiovascular events, including acute myocardial infarction and stroke, initially declined by 40% or more in many countries, including Austria, Brazil, France, Germany, Greece, Spain, the United Kingdom and the United States (Garcia et al., 2020[159]; Huet et al., 2020[160]; Mafham et al., 2020[161]; Metzler et al., 2020[162]; Oikonomou et al., 2020[163]).
- While hospital admissions for cardiovascular events declined at the beginning of the pandemic, case fatality and complication rates for myocardial infarction appear to have increased dramatically since (De Rosa et al., 2020[164]; Primessnig, Pieske and Sherif, 2021[165]). These changes are likely associated with the reduction in hospital visits among patients with milder cardiovascular events. Admitted patients were recorded to have more severe cases than during the same period in 2019, with higher risk of complication and worse short-term and mortality outcomes (Primessnig, Pieske and Sherif, 2021[165]).

Survival rates for cardiac arrests occurring out of hospital also declined, though caution must be taken in interpreting the data, as studies have often focused on one region or city and are not nationally representative. Out-of-hospital survival after cardiac arrest declined by 50% in Victoria (Australia) between March and May 2020 compared to the same period in 2017-19, while 30-day survival rates fell by more than half in London (United Kingdom) in March-April 2020 compared to the previous year (Ball et al., 2020[166]; Fothergill et al., 2021[167])

At least some of the drivers of this increase in mortality are likely associated with disruptions to the care pathways due to health systems constraints and restrictions, including increases in ambulance response times and increases in time to implement critical interventions (Scquizzato et al., 2020[168])

While the economic fallout of the pandemic was dramatic across most OECD countries in 2020, the subsequent recovery has been fast but uneven

The public health crisis and the unprecedented measures to reduce the spread of the SARS-CoV-2 virus had a substantial negative impact on overall economic activity around the world. The world's Gross Domestic Product (GDP) contracted by 3.4% in 2020 following restrictions in travel and trade, the closure of manufacturers, construction sites, non-essential retailers, hotels, restaurants, and many other industries (OECD, 2021[169]). In many countries, the year 2020 marked the greatest economic decline in generations, also surpassing the effects of the economic and financial crises of 2008/09. With the exception of Ireland and Turkey, economic activity slowed down in all OECD countries in 2020. Declines were particularly pronounced in Spain (-10.8%), the United Kingdom (-9.8%) and Italy (-8.9%). These countries were also severely affected by a high number of cases between March to May 2020, requiring them to take drastic measures to tackle the pandemic.

Explaining the heterogeneity of trends in GDP growth in 2020 is complex, as economic development is influenced by many different factors. Yet, the size of the travel and tourism sector is generally the biggest single explanatory factor in the effects of the pandemic on economic activity (OECD, 2021[170]). This helps explain why Iceland and Greece (countries where this sector accounts for more than 20% of GDP) observed a significant economic downturn in 2020, albeit recording low to medium excess mortality. This has had a bigger impact than the extent of lockdowns or epidemiological outcomes. Other factors explaining differences in economic performance include the overall composition of the economy, since not all sectors or industries were similarly affected, and the trade orientation of countries. Finally, all OECD countries took a vast array of emergency budgetary measures to protect jobs and incomes, but the timing and the magnitude of these stimulus packages differed (OECD, 2021[171]).

Global economic recovery in 2021 has been fast with a projected GDP growth of 5.7%, and expected strong growth in many OECD countries such as Turkey (8.4%), Spain (6.8%) and the United Kingdom (6.7%), facilitated by the rapid vaccination rollout in many advanced economies (OECD, 2021[169]). However, the recovery has been uneven so far, as many emerging economies and low and middle income countries lag behind vaccination progress. Delays in vaccination will prevent countries from fully resuming economic activity, affecting not only domestic growth but also global supply chains, with knock-on effects for other economies. The evolution of the pandemic brings further uncertainties for economic recovery related to, for example, the emergence of new virus variants that could potentially lead to a re-introduction of stricter social distancing measures.

Eighteen months into the pandemic – where do we stand?

COVID-19 has had a devastating health impact, ending many lives prematurely and causing prolonged ill-health. It has disproportionately affected older populations and people with certain health conditions or behavioural risk factors. There has also been a clear social gradient, with COVID-19 amplifying existing inequalities. Across the OECD, more than 2.1 million COVID-19 deaths were reported until mid-October 2021, with the actual death toll directly or indirectly caused by COVID-19 much higher. Moreover, more than 110 million infections with the SARS-CoV-2 virus were recorded in OECD countries, in many cases requiring hospital treatment or even intensive care. Around one in ten infected people continue to suffer from symptoms more than three months after infection.

Rapid rollout of vaccination campaigns have reduced the risk of severe illness and death from COVID-19 in 2021 across OECD countries. Yet, in light of emerging evidence on waning vaccine effectiveness over time and persistent vaccination hesitancy in some countries, a continuation of some containment and mitigation measures is likely to remain in place. A number of countries have also started to administer booster doses with a focus on the most vulnerable population groups. At the

same time, ensuring global access to vaccines, especially to low and middle income countries is critical to tackling the pandemic and stopping millions of preventable deaths. Surge capacity that can be quickly and flexibly deployed when needed – both in terms of hospital and intensive care capacity as well as health workforce – will improve the ability of health systems to respond to unexpected shocks.

COVID-19 has also severely disrupted health care for people with other illnesses. Mounting evidence shows how a wide range of health services have and continue to be affected by the pandemic. Access to health services for non-COVID-19 patients was particularly disrupted at the beginning of the outbreak, as capacity was reoriented to tackle the surge of COVID-19 patients. In many countries, GP consultations, cancer screening, emergency department use and hospital admissions for cardiovascular events fell, while waiting times for elective surgery increased.

It remains to be seen how such indirect impacts will translate into lasting negative health outcomes. In some countries, disruption of essential health or preventive services appears to have been only temporary, implying that health systems were capable of adapting to the crisis quickly. This refers for example to replacing face-to-face visits with teleconsultations or to increasing cancer screening activity in the second half of 2020 and 2021 to (partly) compensate for cancellations during the first COVID-19 peak. Yet, it is too early to know the full impact. Further, the burden of mental ill-health has been far from temporary, with a risk that COVID-19 will mentally scar many people for years to come. Mental health and cancer are also two areas where delays to health care can have particularly severe adverse health effects. Increased attention should therefore be given to address the backlog of cancer screening and referrals. For mental health, support services need to be strengthened and maintained, with services tailored towards the needs of different population groups.

Overall, this analysis of the health impact of COVID-19 has demonstrated the immense pressure the pandemic has placed on people's health and health systems. The health crisis has in turn led to a major economic crisis, with the potential for long-term repercussions across society. Looking forward, targeted health investments are needed to strengthen pandemic preparedness and broader system resilience. The returns from such investments extend beyond the benefits of fewer lives lost. More resilient health systems are also at the core of stronger, more resilient economies and societies.

Notes

1. Reported infection rates in Mexico have been low. However, given the low testing rates in Mexico (in early June 2021 the country carried out only 0.07 tests per day per 1 000 population compared with 3.4 in Chile or 1.2 in Colombia), actual infections rates are likely to be much higher.
2. As of October 2021, the World Health Organization (WHO) has identified four "variants of concern" (WHO, 2021[173]). These are the Alpha and Beta variants (both designated in December 2020), the Gamma variant (designated in January 2021) and the Delta variant (designated in May 2021).
3. Most OECD countries are using the Pfizer-BioNTech, Moderna (mRNA vaccines) or the Oxford-AstraZeneca products as the principal vaccines in COVID-19 immunisation campaigns.
4. However, it needs to be borne in mind that excess mortality can be caused by various factors such as severe flu seasons or heatwaves. In some countries that record positive excess mortality in 2020 and 2021, this will include other factors than COVID-19.
5. Given that the reported COVID-19 deaths are much lower, this suggests a substantial underestimation of COVID-19 mortality in the country.
6. Health and social workers represent around 7% of the global workforce.

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ANNEX 2.A

Data on excess mortality and COVID-19 deaths

Annex Table 2.A.1. Excess mortality and COVID-19 deaths in OECD countries, cumulative by end of June 2021

Country	Total number of COVID-19 deaths	COVID-19 deaths per million population	Total number of excess deaths	Excess deaths per million population	Percentage increase in total deaths (compared to average of 2015-19)
Australia	910	36	5 369	211	2.58%
Austria	10 505	1 180	11 306	1 270	9.07%
Belgium	25 193	2 186	15 830	1 374	9.39%
Canada	26 368	699	42 458	1 125	10.57%
Chile	33 249	1 739	40 862	2 138	25.70%
Colombia	109 466	2 151	118 191	2 323	37.80%
Costa Rica	4 726	928	N/A	N/A	N/A
Czech Republic	30 348	2 838	37 050	3 465	21.76%
Denmark	2 537	436	1 136	195	1.38%
Estonia	1 270	956	1 855	1 396	7.83%
Finland	974	176	1 894	343	2.31%
France	111 190	1 652	92 507	1 374	10.01%
Germany	91 031	1 095	76 945	925	5.37%
Greece	12 737	1 188	15 024	1 402	8.02%
Hungary	29 996	3 070	23 679	2 424	11.83%
Iceland	30	82	68	188	1.99%
Ireland	5 000	1 007	N/A	N/A	N/A
Israel	6 428	743	6 628	766	9.64%
Italy	127 649	2 140	128 279	2 151	12.92%
Japan	14 842	117	99 541	787	4.94%
Korea	2 028	40	2 659	52	4.04%
Latvia	2 528	1 325	2 307	1 209	5.27%
Lithuania	4 395	1 573	5 386	1 928	8.69%
Luxembourg	818	1 307	550	879	8.64%
Mexico	233 689	1 813	574 527	4 456	54.79%
Netherlands	17 755	1 020	24 084	1 384	10.43%
New Zealand	26	5	1 031	214	0.83%
Norway	794	148	-1 489	-277	-2.39%
Poland	75 085	1 978	139 024	3 663	22.57%
Portugal	17 117	1 663	20 848	2 025	12.16%
Slovak Republic	12 514	2 293	17 098	3 133	20.83%
Slovenia	4 753	2 268	4 862	2 320	15.64%
Spain	80 934	1 710	87 123	1 841	13.49%
Sweden	14 667	1 420	5 630	545	4.12%
Switzerland	10 305	1 197	9 196	1 069	8.98%
Turkey	49 924	600	N/A	N/A	N/A
United Kingdom	151 912	2 232	108 843	1 599	11.67%
United States	603 766	1 824	846 949	2 559	19.85%
OECD total	1 927 459	1 406	2 567 250	2 010	15.51%
OECD average	N/A	1 285	N/A	1 499	11.79%

Note: No excess deaths data for Costa Rica, Ireland and Turkey. Data go up to week 26-2021, except for Australia (week 25), Canada (week 22), and Colombia (week 18).

Source: OECD (2021[30]), "OECD Health Statistics", <https://doi.org/10.1787/health-data-en>, based on EUROSTAT data and national data.



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