

Excess mortality

Excess mortality measures whether, and if so to what extent, the total number of deaths from all causes is over and above what could normally be expected for a given period of time. Here, deaths in 2020 are compared against the average over the previous five years. Excess mortality has been particularly useful in providing a fuller understanding of the impact of COVID-19 across countries, since it is unaffected by country-specific variations in the recording of COVID-19-specific deaths, and accounts for both deaths directly attributable to COVID-19 and deaths indirectly linked to the virus (Morgan et al., 2020[5]). For example, there may have been more deaths in 2020 than would have normally been expected due to health systems not being able to cope with other conditions. This may be counterbalanced to some extent by potentially fewer fatalities from traffic and workplace accidents, and a reduction in the number of deaths from other infectious diseases.

In 2020, across 36 OECD countries with available data, over 1.8 million excess deaths were recorded, compared with the average number of deaths over the five previous years. This represents an 11% increase in the number of deaths, on average – equivalent to 1 334 additional deaths per million population.

More people died in 2020 compared with the average of the previous five years (numbers adjusted for population growth) in all but four OECD countries. Excess mortality in 2020 was highest in Mexico, where a 52% increase in overall mortality was recorded compared to the previous five years (Figure 3.5). Excess deaths were also relatively high in Colombia (28% higher), Poland (22%) and the United States (21%), and a further 16 countries experienced mortality rates between 10% and 20% higher in 2020 than in the preceding five years. By contrast, there were fewer deaths compared to the five-year average in New Zealand, Australia, Iceland and Norway – all countries experiencing relatively few COVID-19 deaths.

Across the OECD as a whole, excess deaths were higher than recorded COVID-19 deaths in all weeks from March 2020 until the end of 2020, with peaks in April and December (based on weekly data for 33 OECD countries). Preliminary data for 2021 point to a continued trend of excess mortality in OECD countries. Excess mortality was noticeably higher than COVID-19 mortality in Mexico, Poland, Lithuania, Portugal, the Slovak Republic and the United States. This may reflect additional deaths in 2020 indirectly caused by COVID-19 or by unrelated factors, but could also point to potential under-reporting of some COVID-19 deaths, particularly in the absence of widespread testing early on in the pandemic. In contrast, Belgium, Denmark, Luxembourg and Sweden recorded higher COVID-19 fatality rates than excess deaths, implying reduced mortality from other causes or a broader definition of COVID-19-related deaths with high case identification in some countries (see Chapter 2 for further analysis of these data and links to COVID-19 references).

Examining excess mortality rates across age groups is important in the context of COVID-19. The vast majority of COVID-19 deaths have occurred in older population groups (as

well as among those with certain chronic conditions, such as cardiovascular diseases and diabetes). These are also population groups with the highest underlying risk of mortality. Disaggregating excess mortality by age provides insights into the extent to which deaths among people of different age groups were higher than in previous years. In all but three of the 26 OECD countries with comparable age-disaggregated data, the number of deaths in the population aged 65 and over was higher than expected, with 15% more deaths than average in Belgium, Italy, Poland, Spain and Slovenia.

While over half of the countries saw increased mortality rates for either or both those aged 45-64 and those aged 0-44, there were notable differences across countries (Figure 3.6). Australia, Latvia, Italy, Sweden and Lithuania saw a marked decrease in deaths among the 0-44 age group, possibly as a result of the reduction in mobility and contacts. By contrast, Finland, Germany, the Netherlands and Poland saw a more than 5% increase in deaths among this age group, though the mortality rate in this age group remains small. In the United States, deaths among the 0-44 age group were more than 20% higher than expected, and higher than the excess mortality of the population aged 65 and over, which could also be due to underlying trends in other causes of death (Rossen et al., 2020[6]).

Definition and comparability

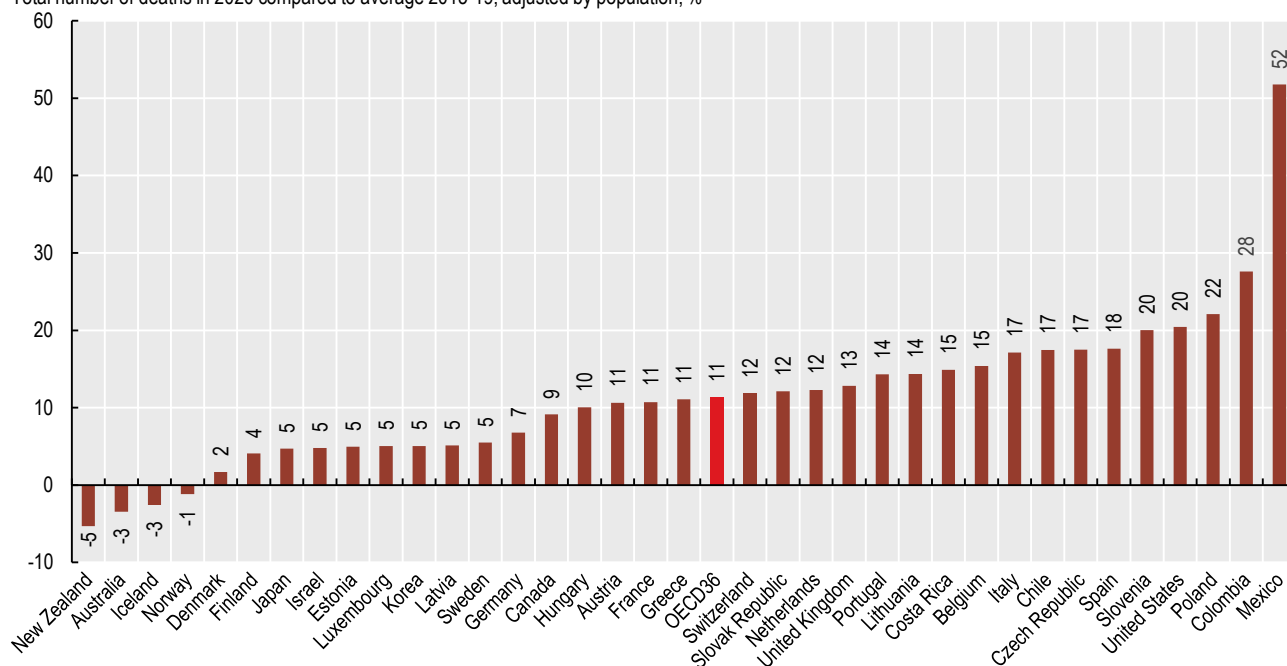
Excess mortality is defined here as the total number of deaths from all causes in 2020, compared to the average annual number of deaths over the previous five years. Figures are adjusted for population growth in age groups over time. This adjusted baseline could still be considered a somewhat conservative estimate of the expected number of deaths, since an ageing population would also be expected to push up the number of deaths observed each year. Excess mortality is reported as a percentage increase (or decrease).

National variations in underlying death rates related to various events mean that caution is needed when comparing excess mortality at a given point in time. For example, significant country-specific events such as severe flu seasons, heatwaves and natural disasters during the previous five years may have had a large influence on the number of deaths, affecting the underlying average. However, choosing a five-year comparator period (2015-19) helps to mitigate such variations.

Variations in the onset and duration of the various waves of the COVID-19 pandemic will have an impact on analysing the linkages between COVID-19 deaths and excess mortality across countries. Nevertheless, taking the whole of 2020 as an overall timeframe is considered a suitable period of analysis to examine differences in the initial evolution of COVID-19 in OECD countries.

Figure 3.5. Excess mortality, 2020

Total number of deaths in 2020 compared to average 2015-19, adjusted by population, %

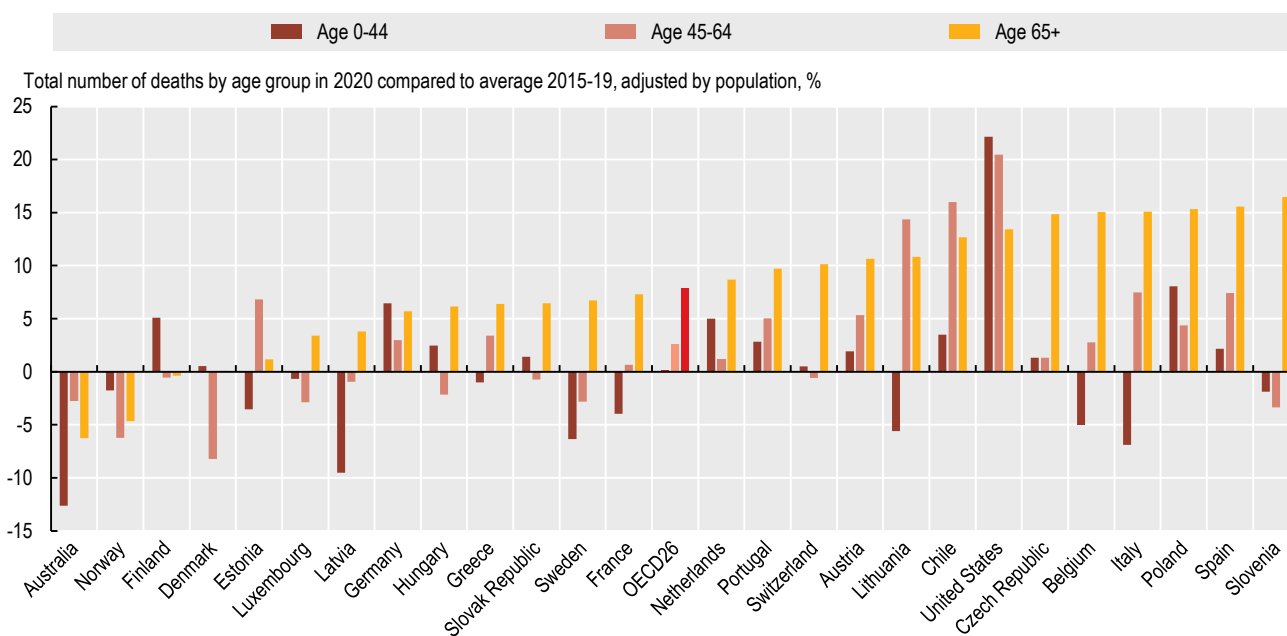


Note: 2020 all-cause mortality data for New Zealand do not include infant deaths.

Source: OECD Health Statistics 2021.

StatLink <https://stat.link/0juo4r>

Figure 3.6. Excess mortality by age group, 2020



Source: OECD Health Statistics 2021.

StatLink <https://stat.link/98npdf>



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