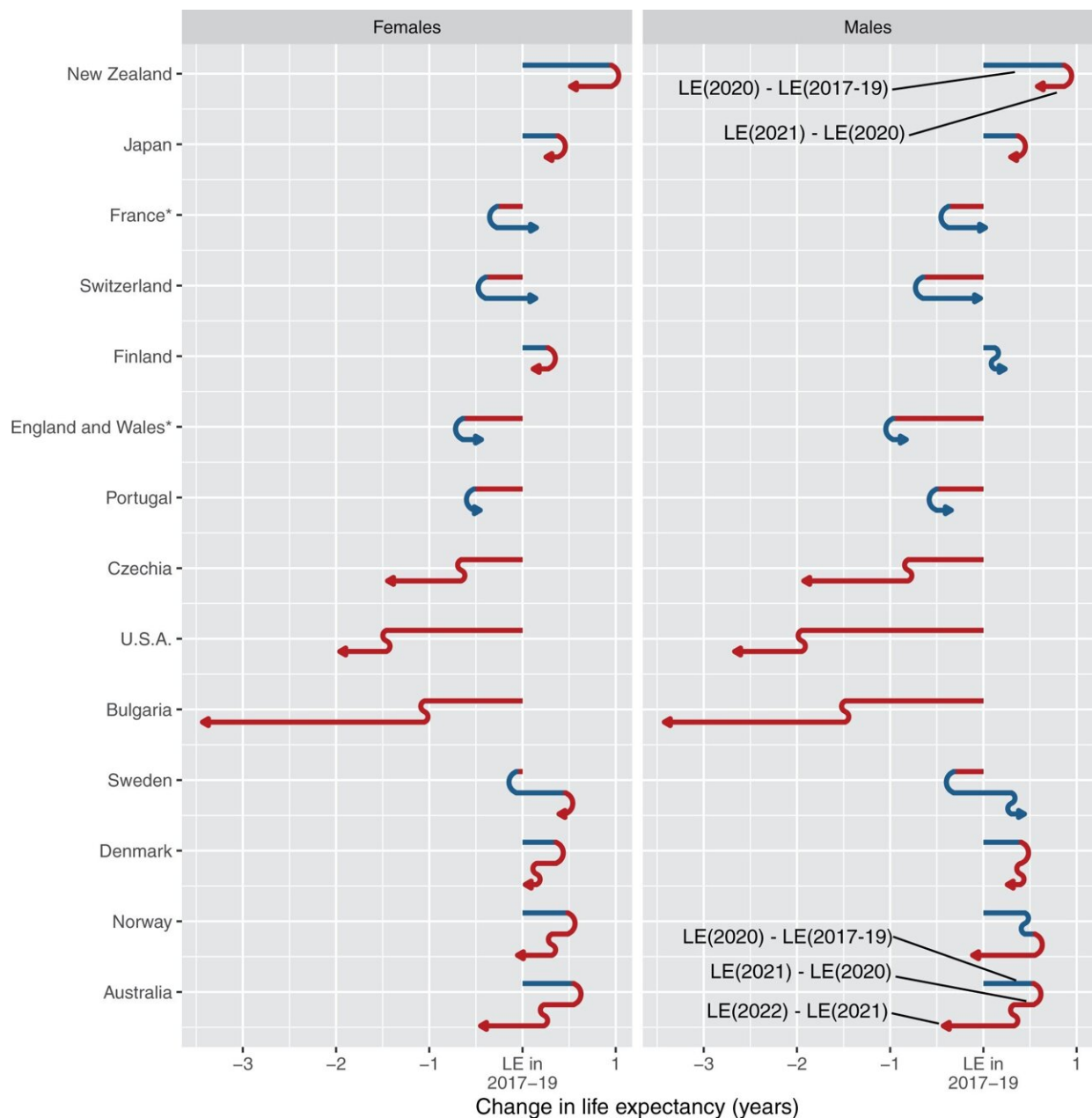


The rise and fall in Australia's life expectancy during the pandemic

September 25 2023, by Tim Adair, Brian Houle and Vladimir Canudas-Romo



Change in life expectancy at birth by sex compared with 2017–19, Australia 2020–2022 and selected countries 2020–2021 or 2020–22. Bars in the direction of left (red) correspond to declines in life expectancy, and bars in the direction of right (blue) to increase. When similar trends follow over years, then the color remains but a curve is included. *2017–20 data from Human Mortality Database, 2021 data from Scholey et al. (2022). For other countries, 2017–22 data from Human Mortality Database or Australian Bureau of Statistics (Australia). Source: author calculations based on data from Human Mortality Database, Australian Bureau of Statistics and Scholey et al (2022). Credit: *International Journal of Epidemiology* (2023). DOI: 10.1093/ije/dyad121

As its name suggests, "life expectancy" measures the average number of years a person would be expected to live from birth, that is calculated as an estimate from the death rates in a population within a given period.

Life expectancy increases when mortality rates decline and falls if mortality rates rise.

We studied this measure during the [pandemic](#) and found that Australia's life expectancy was higher from 2020 to 2022 than in the years before the COVID-19 pandemic—in contrast to most other [high-income countries](#).

This is despite a historically large fall in life expectancy in 2022 following the relaxation of pandemic restrictions.

Our [study](#)—now published in the *International Journal of Epidemiology*—analyzed [mortality data](#) to measure the effect of the pandemic on Australia's life expectancy and how different causes of death, including COVID-19, contributed to these trends.

Australia provides a valuable international case study into life expectancy trends during the pandemic because it experienced relatively stringent restrictions and low COVID-19 mortality, followed by the loosening of these restrictions.

While much of the focus during the pandemic has been on the COVID-19 death toll—measuring life expectancy trends in mortality from all causes better measures the overall impact of the pandemic on mortality.

The COVID-19 pandemic has had a profound impact on life expectancy globally, and the declines in life expectancy represent the largest global mortality since World War II.

In the United States, one of the worst affected high-income countries, male life expectancy fell by 2.0 years in 2020 and a further 0.7 years in 2021.

In Australia, however, life expectancy for the years 2020 to 2022 was slightly higher (by 0.1 years) than before the pandemic in 2017 to 2019.

This is a better outcome compared with most other high-income countries during these years.

Overall, COVID-19 made a small negative contribution to life expectancy of 0.2 years for Australians, which was more than offset by a positive contribution to life expectancy from declines in non-communicable disease mortality including cardiovascular diseases and cancers.

Sharp rise, and even sharper fall

Within these three years, though, there were strikingly divergent trends

in Australia's life expectancy that were related to the stringency of pandemic restrictions.

We found that during 2020, life expectancy rose by a historically large 0.5 years, which was followed by a slight decline in 2021.

During these two years, mortality from COVID-19 was very low compared with other countries and contributed less than 0.1 years to life expectancy decline. This was a period when international borders were closed and governments introduced relatively strict lockdowns to control the virus.

There was a benefit to life expectancy of a decline in mortality from reduced circulation of all respiratory infections during lockdowns, which also likely contributed to a fall in mortality where the underlying cause was cardiovascular disease or cancer.

Such were Australia's favorable trends in 2020, if we had the same [death rates](#) as the U.S. in that year we would have experienced 65% more deaths than we did.

This was followed by another historically significant [trend](#) in 2022—this time a decline of life expectancy of 0.7 years, a magnitude which we had not seen for several decades.

Deaths from COVID-19 were several times higher in 2022 than in 2020 and 2021 and this contributed to most of the declines in life expectancy in this year.

These trends occurred following the gradual relaxation of pandemic restrictions in the early part of the year. However, despite this sharp decline, it was not enough to offset the rises in life expectancy earlier in the pandemic and, overall, it was higher in 2020–22 compared with

before the pandemic.

Victoria and New South Wales

A prominent feature of the pandemic in Australia was that in 2020 the vast majority of COVID-19 deaths occurred in Victoria and, in 2021, almost all occurred in Victoria and New South Wales where the outbreaks of the virus were worst.

In response to the outbreaks in these states, restrictions were more stringent than in other jurisdictions. However, the overall impact on mortality during 2020–22 was reasonably uniform across states and territories.

Victoria's life expectancy fell very slightly from 2017–19 to 2020–22 (less than 0.5 years) while in New South Wales it rose at a similar magnitude to the Australian average.

These trends are a testament to the effectiveness of the lockdowns in these locations, where outbreaks of the virus were worse, and also demonstrate how the sharply higher COVID-19 mortality in 2022 affected all states and territories.

Mortality displacement

The vastly divergent trends in life expectancy during the first three years of the pandemic correspond closely to restrictions imposed by governments during the pandemic and their subsequent relaxation.

It is clear that a significant degree of mortality displacement has occurred during the pandemic; that is, the restrictions earlier in the pandemic protected the lives of much of the older and frailer population,

but once these restrictions were lifted, the impact of higher mortality adversely affected this group more than others.

This effect is demonstrated by the negative contribution to life expectancy by COVID-19 being greatest among people aged 80 years and above.

Some of the deaths that were due to COVID-19 would have had pneumonia as a more immediate cause and would have offset the lower mortality from reduced circulation of respiratory infections in 2020–21.

Other countries that also experienced a rise in life expectancy in 2020, including New Zealand and Norway, also saw a fall in subsequent years.

The reverse trend has also been identified in several other countries, like France and Switzerland, where sharp declines in life expectancy in 2020 were followed by large increases in the following years.

Looking back and ahead

Our study shows the importance of analyzing life expectancy during the whole pandemic to date because annual trends can vary greatly depending on the presence of restrictions in the population.

Despite the historically large declines in life expectancy in some other high-income countries, Australia's life expectancy in the first three years of the pandemic was higher than in the three years preceding the pandemic, albeit not as high as forecast based on pre-pandemic trends.

COVID-19's negative contribution to life expectancy was small.

Lower mortality from non-communicable diseases like cancers and cardiovascular diseases made a positive contribution to life expectancy,

allaying some fears that reduced access to health services due to restrictions may have increased mortality from these causes.

Australia's generally favorable trends can be attributed to its relatively stringent lockdowns, helped by being an island nation, and opening up of most restrictions only once vaccination rates had reached a high level.

Despite these relatively favorable trends in 2020–22, it's clear that the pandemic is not over.

During the first five months of 2023, we experienced excess mortality in Australia of seven percent compared to what would be expected in the absence of the pandemic, of which half was due to deaths from COVID-19.

Although this is lower than the excess mortality of 12% experienced in 2022 and would mean that life expectancy in 2023 is higher than in 2022, it's a reminder that Australian life expectancy is yet to return to a pre-pandemic "normal."

Looking forward, the impacts on [mortality](#) of new variants of the virus, the level of ongoing vaccination coverage, long COVID and reductions in screening of various medical conditions during the pandemic are all factors that may impact [life expectancy](#) in Australia.

More information: Tim Adair et al, Effect of the COVID-19 pandemic on life expectancy in Australia, 2020-22, *International Journal of Epidemiology* (2023). [DOI: 10.1093/ije/dyad121](https://doi.org/10.1093/ije/dyad121)

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