Reducing COVID transmission by 20% could save 2,000 Australian lives this year

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Credit: AI-generated image (disclaimer)

Australia's COVID death toll is rising, yet public health measures to reduce transmission such as mask mandates are largely a thing of the past.

It's time for governments and the community to consider what measures can be reintroduced to reduce COVID transmission and deaths, particularly during waves of infection.

Cutting COVID transmission by 20% could avert more than one million infections and 500 COVID deaths in Victoria this year, our new modeling shows.

Given Victoria makes up around 25% of Australia's population, if extrapolated, these results suggest a 20% reduction in transmission could save up to 2,000 lives nationally.

Even if reintroducing public health measures cut COVID transmission by 10%, this could save between 198 and 314 Victorian lives between now and the end of 2022. Again, this would translate to many more lives saved nationally.

COVID isn't 'just like the flu'

The prevailing view in Australia is we can now treat COVID "like the flu." However, the dramatic and sustained increase in COVID-related deaths in 2022 tells a very different story. There have been 5,687 COVID deaths reported in Australia since January 1.

During the omicron wave in January 2022, COVID was the second most common cause of death nationwide, with 2,865 more people dying in that month than is normally expected. That's a 22% increase.

Critically, COVID deaths have not stopped since the January peak: our current seven-day average sits at about 45 deaths per day, or 315 deaths each week.

In comparison, our most recent severe influenza season (2017) caused

1,255 deaths across the entire year.

We have vaccines, so why are there so many deaths?

There are still so many deaths because we have let the virus run. By scaling back public health measures and delivering an "it's over" message, we have allowed almost unfettered transmission.

Currently, 381,000 Australians are known to be infected with SARS-CoV-2, the virus that causes COVID. With high case numbers comes a high death toll, even with a reduced case fatality rate (the proportion of those infected who die).

This relaxed policy stance—combined with emerging variants (three new omicron strains have entered Australia), winter encouraging more time indoors, and waning immunity—suggest high caseloads will continue for some time yet.

> A 3rd mRNA vaccine shot is the most effective way to slow spread of Omicron variants & limit hospitalization. Why are there so many new Omicron sub-variants, like BA.4 and BA.5? Will I be reinfected? Is the virus mutating faster? https://t.co/WVj6McdjWi via @ConversationEDU
>
> — Prof. Peter Doherty (@ProfPCDoherty) May 6, 2022

Who is dying of COVID?

In order to reduce COVID deaths, it's important to understand who is dying and why. While some basic information on deaths is available for some states, additional data—for example, whether those who die are eligible for antiviral treatment—is needed. Such data could enable

targeted public health action such as improving treatment access.

Nevertheless, with the data we have we know older people continue to be at greatest risk. Last week in NSW, 41% of all COVID deaths were in aged care residents, despite very high rates of vaccination.

We often hear those who die from COVID have pre-existing medical conditions. This is true—about 70% of deaths due to COVID were in people with chronic conditions.

But note that half of all Australians have a chronic condition, as do 80% of those aged 65 and older. Given most of those who have died due to COVID are aged over 65, it's not surprising most also have an underlying condition.

Are people dying 'with' rather than 'of' COVID?

Some argue the high rates of COVID deaths isn't as worrying as it seems because people are dying "with" COVID rather than "from" COVID.

But the majority (89.8%) of COVID deaths are "from" COVID.

For those defined as dying "with" COVID, this means COVID has possibly or probably "contributed" to those deaths.

For example, a person is infected with COVID which weakens their immune system and leads to a bloodstream infection (sepsis). They're hospitalized and die three weeks after their COVID diagnosis. Although their death is directly "due to" sepsis, it is also "with" COVID because COVID caused the decline in their health which ultimately led to their death. COVID is not incidental in these deaths.

COVID is also killing young people—even children. Eight children aged

nine and under have died in Australia from COVID since the pandemic began, as well as five people aged ten to 19 years, 22 in their twenties, and 65 in their thirties.

It's impossible to know if COVID will cause significant numbers of premature death in coming years. Given the damage the SARS-CoV-2 virus causes to the heart, brain, kidneys and lungs, we have reason enough to be seriously concerned.

What could reduce the COVID death toll?

Vaccination continues to be hugely important, and the main reason we can even contemplate our current open lifestyle. But vaccination alone is not enough.

Improving air quality and/or wearing a high-quality N95/P2 mask in indoor spaces cause minimal disruption to the community but interrupt COVID transmission effectively.

To illustrate the benefit of interventions, we used our model to simulate three hypothetical scenarios for the state of Victoria for the remainder of 2022.

We first modeled a scenario with no additional interventions (the light blue line). We compared this with two scenarios where, from May 20, hypothetical interventions were introduced that could reduce the risk of transmission per contact by 10% (the dark blue line) or 20% (the red line).

We didn't specify which specific interventions should be adopted to make up the 10% or 20% reduction. It could be a single intervention a or combination that make up the 10% to 20% reduction.

Between May 20 and the end of 2022, the outcomes from the "no additional intervention" scenario were an extra 2.22–2.38 million infections or reinfections and 1,060–1,450 deaths in Victoria.

With interventions reducing transmission by 10%, 596,000–614,000 infections and 198–314 deaths could be averted (a 16–25% reduction) over this period.

With interventions reducing transmission by 20%, 1.08–1.10 million infections and 462–502 deaths could be averted (a 37–40% reduction). As outlined above, this translates to up to 2000 lives nationally.

These are likely to underestimate the impact of interventions because the analysis was deliberately conservative and didn't consider new COVID variants or sub-variants (only omicron BA.1 and BA.2).

The simple message is a small reduction in transmission has a big impact on mortality.

How do we do this modeling?

The model used for this work was COVASIM, a model that can assess the impact of different policies and behaviors on COVID transmission, hospitalizations and deaths. The model has been used to assist policy decisions in Australia, the United States and the United Kingdom.

People in the model are assigned an age (which affects their susceptibility to infection and their disease prognosis), a household, a school (for people aged five to 17) or a workplace (for people over 18, up to 65), and they participate in a number of community activities that may include attending restaurants, pubs, places of worship, community sport, and social gatherings.

The model includes:

- vaccination (including individual dosing schedules, vaccine types and waning immunity)
- testing (PCR or rapid antigen tests)
- contact tracing (self-tracing)
- quarantine of close contacts
- isolation of confirmed cases
- masks
- a variety of policy restrictions to prevent or reduce transmission in different settings (such as closing schools or workplaces, density limits in hospitality and retail settings, restrictions on social gathering sizes).

It's not just about the economy

Australia successfully mitigated the direct impact of COVID in the first two years of the pandemic. However, recently Australia has made little effort to reduce the impact of COVID. We are quietly, perhaps unknowingly, approving a trade-off between COVID deaths, and economic and social well-being more generally.

Many people seem unaware of the high death numbers, and that simple interventions can make a meaningful difference.

But the value of the current trade-off is unclear. The economic and social benefits of winding back key public health measures, when tens of thousands of COVID cases occur each day, have not been established. Indeed, stories of major COVID-driven disruption are common, suggesting the opposite is true.

Australia must find a middle road, centered around slowing transmission, reinvigorating vaccine roll-out and scaling-up treatment options for

people with COVID infections. Otherwise, 10,000 or more COVID deaths per year could well be our new—previously unthinkable—normal.