Thank you for this opportunity to contribute to the COVID-19 Response Inquiry. I am an Associate Professor and hold a PhD in Finance and am making my submission as an Australian university employed academic. My submission meets the scope of the inquiry in recognising the wide-ranging impacts of COVID-19 across portfolios and the community. My submission specifically focuses on the economic impacts of COVID-19 and the recommendations extend to preparedness for future pandemics.

I note that although COVID-19 is no longer considered a Public Health Emergency of International Concern by the WHO, it recognises that the COVID-19 pandemic has not ended and that it is unlikely to be declared over in the near term. Australia continues to have widespread transmission of COVID-19 in the community.

The current and ongoing economic cost of COVID-19 is driven by widespread transmission resulting in

- excess mortality in working age groups
- full or partial withdrawal of workers from the workforce due to the long term impacts of initial and repeat COVID infections
- absenteeism of workers due to illness or from caring for family members
- increased cost to the healthcare system

Excess mortality

Excess mortality is widely regarded as the best measure of the overall impact of a pandemic since it includes deaths both directly and indirectly due to the disease.

Actuaries Institute's COVID-19 Mortality Working Group estimated that there were just over 20,000 (12%) more deaths in Australia in 2022 than we would have expected if there had been no pandemic. Total excess mortality for the first eight months of 2023 is 6% (6,400 deaths).

Excess deaths in Australia, increased significantly in working age groups in 2022. Mitigations to reduce transmission including isolation and mask requirements were removed in 2022. Excess death rates for women aged 0-44 were higher than men in 2022 (10% vs 4%) but men aged 45-64 has similar excess death (9%). The available 2023 estimates are only until 31 July and do not include the impact of the current major waves.

Excess death rates (Actuaries Institute's COVID-19 Mortality Working Group)

	2021	2022	2023 (to 31 July)
F 0-44	4%*	10%*	9%*
F 45-64	-1%	7%*	2%
M 0-44	-2%	4%*	-3%
M 45-64	-1%	9%*	1%

*statistically significant at the 5% level

An estimate of the economic impact of U.S deaths due to COVID in terms of national income growth supplemented by the value of lives lost, was approximately **US$3.57 trillion**. The scale of welfare losses underscores the pressing need to invest in mitigating transmission of diseases to prevent economic shocks from future pandemic threats.

Long term impacts of initial and repeat COVID infections

The long term impacts of COVID include physical and cognitive impairments such as cardiovascular, auto-immune and neurological impacts. The risk of long term impacts increase significantly with each reinfection. Recent research suggests that COVID infection ages the brain by 20 years which potentially impacts current and future performance and productivity in large numbers of people.

In the U.S it is estimated that there are about 10 times the number of people with long COVID as have died of COVID. A July 2022 Harvard University study estimated the economic costs of long COVID in the U.S as **$3.7 trillion**. 59% of the cost is lost quality of life; the remainder is reduced earnings and greater medical spending. The total amount is roughly $11,000 per person, or about 17% of pre-COVID US GDP. The cost of long COVID rivals in aggregate the cost of the Great Recession. This may be an understatement of the costs as it does not include the economic impact of lower productivity (due to caring for others or working while ill).

Long COVID impacts work hours and type of employment. People with long COVID are less likely to be employed, work fewer hours and experienced greater impact in their employment status and work hours than people without long COVID. A 2022 Brookings report estimated that 1.8% of the US labour force was out of work due to the long term impacts of COVID. Similar estimates have been made for the UK by the Bank of England in May 2022, where labour force participation had decreased by 1.3% across the entire 16-64 year old population. Labour shortages limit the economy's ability to grow without boosting inflation.

In Australia, there is no reliable data on the prevalence of long COVID. A recent Victorian health survey recently found 14 per cent of respondents met long COVID criteria and numerous other studies suggest it occurs in 10-20 per cent of infections. It is estimated that Long COVID is costing the Australian economy at least **$5.7 billion and up to $46 billion** a year, depending on the number of people unable to work due to illness (Impact Economics and Policy).

Business and customers bear the cost of absenteeism of workers due to illness or from caring for family members. Prior to the pandemic, the absenteeism rate in Australia averaged 3.3% per month. During 2022, the absenteeism rate rose abnormally high to 5.8% at its peak (ABS Labour Force Australia), likely reflecting a higher illness burden as COVID mitigations were removed. It is estimated that absenteeism cost Australian businesses **$24.2 billion** in lost productivity in 2022.

Absenteeism not only negatively affects productivity but also in less measurable ways such as reduced customer service and satisfaction and lost revenue.

Recommendations

The enormity of these costs implies urgent need for policy to reduce transmission of COVID in Australia and the development of treatment for long COVID. These policies also apply to future pandemics.

Recent research suggests that non-pharmaceutical interventions had statistically and economically significant effects on public health outcomes during the early years of the current pandemic. Importantly, they also had a much smaller impact on the labour market and economic outcomes.

Polices to reduce transmission of COVID and future diseases include :

- Setting and implementing national indoor air quality standards to reduce transmission of all air borne diseases in public and private buildings (in line with recommendation 9 of the Australian Long COVID inquiry).
- Public health campaigns to educate the public on the impact of disease/COVID, how to reduce transmission and the best means of protection
- Access to paid sick leave for all workers. When workers do not have access to paid sick leave, they are more likely to go to work sick, which increases transmission
- Consultation with multi disciplinary expertise to inform and set responses and policy for the current and future pandemics. The complexity and wide ranging impacts of pandemics requires expertise from other disciplines besides public health and infectious diseases including other medical specialists, engineers, architects, social scientists and economists.

The benefits of implementing these polices would far outweigh the ongoing costs of the current pandemic. The costs of unmitigated transmission of COVID suggest that much greater weight and focus needs to be placed on implementing and maintaining mitigations to reduce transmission of diseases in future pandemics.