

Learning from the past to prepare for the future

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Lessons from the COVID-19 experience can minimise the morbidity, mortality and social disruption of future pandemics

Our society and health care systems have experienced significant challenges and undergone major changes as a consequence of the coronavirus disease 2019 (COVID-19) pandemic: from the dramatic early days, with high rates of morbidity and mortality overseas,^{1,2} and the long, difficult lockdowns in several Australian states to incredible advances in medical knowledge in terms of both vaccination and treatment.

However, what the future holds is unclear. Further waves of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections are likely, either because of waning of the immunity acquired during previous infection or vaccination, or new viral variants that evade immunity. Of equal importance, new pathogens will cause further pandemics. The lessons from our COVID-19 experience will help determine our ability to respond in a timely manner to new pathogens and consequently minimise the morbidity, mortality and social disruption they cause.³

The article by Rowe and colleagues⁴ adds to the lessons of the COVID-19 pandemic. The authors describe associations between SARS-CoV-2 infection (25 January 2020 – 31 May 2021) and the incidence of hospitalisation in Victoria with selected respiratory and non-respiratory conditions. The period included was early in the pandemic, when most Victorians were unvaccinated and had not been previously infected with SARS-CoV-2; vaccination began in February 2021, and by 31 May 2021 about 7.6% of the Victorian population had been vaccinated.⁵

Rowe and her colleagues⁴ analysed hospital admissions during the twelve months preceding and the twelve months following a COVID-19 diagnosis by linking the data of people with confirmed infections recorded in the Victorian Department of Health Transmission and Response Epidemiology Victoria (TREV) database with data from the Victorian Admitted Episodes Dataset (VAED) and the Victorian Death Index (VDI). The authors compared the incidence of hospitalisation with each of several severe conditions after and before exposure to SARS-CoV-2 infection. Rowe and colleagues found that the incidence of hospitalisations with myocarditis and pericarditis, pulmonary thromboembolism, thrombocytopenia, acute myocardial infarction, cerebral infarction, and respiratory complications were significantly higher after than before exposure.⁴

The authors acknowledge that, as the vaccination rollout in Victoria coincided with a change in the dominant SARS-CoV-2 strain (from Delta to Omicron), the relative contributions of vaccination and strain attenuation to changes in the rates of severe conditions are unknown. Nevertheless, they rightly assert that their study provides a “useful baseline for exploring variations in complication rates modified by these factors”.⁴

Community immunity to SARS-CoV-2 is currently high because of both vaccination and infection, and protection against severe disease has largely been maintained among the vaccinated.⁶ However, at the time of writing (November) case numbers are



again rising across Australia, reflecting community transmission of the Omicron variants XBB and BQ.1.⁷ The burden of disease is still high in certain population groups, particularly people with compromised immune systems, including older people who cannot mount effective immune responses to either vaccination or infection. We still need better preventive and therapeutic options to protect the most vulnerable in our society.

The report by Rowe and colleagues highlights the significant health burden of COVID-19 prior to the development of widespread community immunity. Compared with early 2020, we now have better systems and structures for monitoring and responding to new variants or a new pandemic. In Australia this includes the ongoing development of mRNA vaccine technology, including local manufacturing capacity,^{8,9} expanded and adequately resourced and nimble public health units, robust surveillance of emerging pathogens, improved management of outbreaks in aged care facilities, and the recent decision to establish an Australian Centre for Disease Control to improve national pandemic preparedness and the prevention of communicable and non-communicable (chronic) diseases.¹⁰ Some aspects still need attention, including access to hospital and community care in both urban and regional areas.

We must ensure these systems and structures, put in place since the start of the pandemic, are not eroded over time as our focus moves to other needs. Singapore and Taiwan developed national command frameworks for responding to future pandemics following the earlier severe acute respiratory syndrome (SARS) outbreak (2002–2004), facilitating a coordinated early response to COVID-19.^{11,12} Over the past 18 years, three coronaviruses have emerged — the severe acute respiratory syndrome coronavirus 1 (SARS-CoV-1), the Middle East respiratory syndrome-related coronavirus (MERS-CoV; 2012), and SARS-CoV-2¹³ — and it is likely that we will see another pandemic in our lifetimes. The report by Rowe and colleagues is a timely reminder of the health effects that a novel virus can have in a non-immune population.

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