

Has the COVID-19 pandemic unmasked the fragility of the Australian health care system?

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The intensive care unit (ICU) is a microcosm of our health care system, born more than 70 years ago as the result of another RNA virus, the poliovirus. In 1952, during a major polio epidemic in Denmark, anaesthetist Bjørn Ibsen took the unusual step of providing continuous positive pressure ventilation to ward patients with bulbar polio.¹ His approach led to many lives being saved and the concept of a new medical field dedicated to care for critically ill people.



Since then, the discipline of intensive care has matured to encompass its own medical and nursing training programs, increased physical capacity, and unique interventions for critically ill patients. Mortality outcomes have improved over time for ICU patients,² and, in the absence of new therapies, have been attributed to improvements in the quality of the intensive care provided.³

The coronavirus disease 2019 (COVID-19) pandemic has led to ICUs in many regions, including Europe, the United Kingdom and the United States, being overburdened by people with severe COVID-19.⁴ Outcomes for people admitted to ICUs with COVID-19 have been studied,⁵ but little has been published on outcomes for other ICU patients during the COVID-19 pandemic.

In this issue of the *MJA*, Tan and colleagues⁶ report their multicentre, retrospective cohort study of all adults admitted to Australian ICUs with conditions other than COVID-19 during 2016–2022. Their time series analysis indicated that in-hospital mortality among ICU patients (crude and adjusted for illness severity) was declining before the pandemic, but this trend reversed in early 2021; by March 2022, all improvement since January 2016 had been lost. The increase in mortality was more pronounced in states and territories with higher numbers of COVID-19-related ICU admissions (Victoria and New South Wales) but was still notable elsewhere. Worryingly, the rise in mortality continued after COVID-19-related admission numbers had declined.⁶

The findings by Tan and colleagues raise important questions as to why, one year into the COVID-19 pandemic, in-hospital mortality rose for people admitted to intensive care without



COVID-19. In the absence of other longitudinal outcomes data, one might dismiss the rise as a statistical fluctuation. However, it is important to evaluate whether the pandemic instead unmasked the vulnerability of Australian ICUs to being overwhelmed, or more concerning, whether it exposed the fragility of the Australian health care system more broadly.

The COVID-19 pandemic forced changes to the delivery of health care in Australia, travel restrictions leading to greater need for virtual care or the postponement of care, including preventive care.⁷ In addition, large numbers of less severely ill people with COVID-19 were cared for by a community and hospital healthcare workforce that was often depleted by staff furlough and illness. These health system factors may have influenced outcomes for people admitted to ICUs, even after the pandemic had ebbed.

More specifically, intensive care staff experienced a high burden of burnout, anxiety, stress, and depression during the pandemic,⁸ contributing to a marked attrition of highly skilled and qualified ICU staff members, often replaced by less experienced staff. Given the positive association between ICU patient outcomes and the proportion of staff with critical care credentials,⁹ the loss of experienced and qualified staff members may have contributed to poorer patient outcomes.

Another explanation for the increase in in-hospital mortality for ICU patients without COVID-19 could be the impact of prior exposure to COVID-19. The current Australian and New Zealand risk of death (ANZROD) algorithm for illness severity on ICU admission¹⁰ may not appropriately take the effect of all health system and patient factors into account, including a history of COVID-19.

Tan and colleagues suggest the changes in health care delivery across the Australian health care system during the COVID-19 pandemic affected mortality outcomes for ICU patients. The

apparent excess of deaths in Australia during 2022 suggested by recent Australian Bureau of Statistics data¹¹ is currently unexplained. Further research is needed to determine the reasons for poorer outcomes during the COVID-19 pandemic. Long recognised public health system problems (long emergency department and outpatient waiting times, delayed elective surgery, ICU refusals, staffing fatigue and burnout) were probably exacerbated by the pandemic, but their broader impact on patient outcomes is unknown.

ICUs can be the canary in the coal mine for a health care system. If outcomes for people receiving intensive care have declined during the COVID-19 pandemic, it is critical that we identify which parts of the health care system need repair.

Competing interests: No relevant disclosures.

Provenance: Commissioned; not externally peer reviewed. ■

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