

# Estimate of annual in-hospital cardiac arrests in Australia

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**To THE EDITOR:** In-hospital cardiac arrests (IHCAs) are of great importance to our intensive care community. First, our staff form part of the team responding to IHCAs. Second, many intensive care units (ICUs) contribute to Rapid Response Teams and ICU liaison nurse services which aim to prevent IHCAs. Third, initial survivors of IHCA frequently require ongoing ICU care. Finally, the in-hospital mortality of IHCA remains high and survivors have problems with mobility, self-care, depression and anxiety, leading to recurrent hospitalisation and health care utilisation.<sup>1</sup> In the absence of novel treatments for IHCA, there is an emerging interest in the deployment of extracorporeal membrane oxygenation (ECMO), so called extracorporeal cardiopulmonary resuscitation (E-CPR), during IHCA to improve outcomes.<sup>2</sup>

Unfortunately, there are limited Australian data on the annual number of IHCA events. Such information is necessary for understanding the burden of disease, for resource planning, and for sample size calculations for future interventional studies.

The Australian and New Zealand Cardiac arrest Outcomes and Determinants of ECMO (ANZ-CODE) study enrolled 152 patients with IHCA from seven hospitals in 2017.<sup>3</sup> It reported a median IHCA rate of 0.27 (interquartile range [IQR], 0.19–0.51) per 1000 total admissions. In 2016–2017 there were about 11 million hospital admissions, with 6.6 million in public hospitals and 4.4 million in private hospitals.<sup>4</sup> Using these data, we estimated that about 2970 IHCAs might have occurred in Australia that year.

Using data from the Victorian Admission Episode Database (VAED), the rate of coded IHCAs was 2.5/10 000 bed days in acute care hospitals.<sup>5</sup> During this study period, there were 1 046 335 episodes, with a median hospital length of stay of 2.7 days (IQR, 1.2–5.1 days), about 2.8 million bed days, giving an estimate of about 706 IHCAs in Victoria in 2013–2014. Given that Victoria's population is 24.9% of the Australian population,<sup>6</sup> we estimate that 2835 IHCAs occurred in Australia in 2014.

Therefore, from our two methods of calculation, we estimate that there might be about 3000 IHCAs per year in Australia. We argue that a national strategy is warranted to improve the prevention and treatment of this condition.

## Competing interests

No relevant disclosures.

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