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## Article critique

## Surge capacity for critical care specialised allied health professionals in Australia during COVID-19



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## ABSTRACT

Significant investment in planning and training has occurred across the Australian healthcare sector in response to the COVID-19 pandemic, with a primary focus on the medical and nursing workforce. We provide a short summary of a recently published article titled “Surge capacity of Australian intensive care units associated with COVID-19 admissions” in the *Medical Journal of Australia* and, importantly, highlight a knowledge gap regarding critical care specialised allied health professional (AHP) workforce planning in Australia. The unique skill set provided by critical care specialised AHPs contributes to patient recovery long after the patient leaves the intensive care unit, with management targeted at reducing disability and improving function, activities of daily living, and quality of life. Allied health workforce planning and preparation during COVID-19 must be considered when planning comprehensive and evidence-based patient care. The work by Litton et al. has highlighted the significant lack of available data in relation to staffing of critical care specialised AHPs in Australia, and this needs to be urgently addressed.

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Significant investment in planning and training has occurred across the Australian healthcare sector in response to the COVID-19 pandemic, with a primary focus on the medical and nursing workforce. Recently, Litton et al.<sup>1</sup> published an article titled “Surge capacity of Australian intensive care units associated with COVID-19 admissions” in the *Medical Journal of Australia*. The overall aim of the article was to describe intensive care bed and ventilator capacity in Australia during a surge situation (such as COVID-19). In addition to equipment, medical, and nursing workforce capacity was also considered as a secondary aim.<sup>1</sup>

We provide a short summary of this article and, importantly, highlight a knowledge gap regarding critical care specialised allied health professional (AHP) workforce planning in Australia. To effectively address the healthcare requirements associated with a pandemic, all aspects of patient care including recovery and rehabilitation need to be considered.<sup>2</sup> AHPs have long been recognised as a key workforce embedded in Australian intensive care units (ICUs), where alongside medicine and nursing, these highly specialised and skilled clinicians care for some of the hospitals' sickest patients.<sup>3</sup> Allied health is considered one of the three pillars of health care, optimising patient outcomes across the continuum care, with a focus on improving patient-centred outcomes such as reducing disability, increasing societal participation, and facilitating return to usual activities.<sup>4</sup> AHPs can work across the continuum of care and can bring a unique perspective to the often geographically bound ICU team, regarding what happens to

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patients after they leave the ICU. Therefore, as key members of the multidisciplinary ICU team, workforce planning and resource considerations for allied health are also crucial in any pandemic surge planning to ensure comprehensive patient care.

The data derived for the article published by Litton et al.<sup>1</sup> were obtained rapidly from the Australian and New Zealand Intensive Care Society Critical Care Resources (ANZICS CCR) registry. This binational registry holds data obtained annually regarding the provision and utilisation of critical care resources in Australia and New Zealand. Data obtained from the registry included workforce data, available ventilation equipment, and available ICU beds. To compliment and extend the data within the ANZICS CCR, a survey of capacity specifically designed for the COVID-19 pandemic was sent to ICU directors in Australia. The survey gained additional information on the capacity to increase ICU bed capacity across the surveyed hospital, as well as many forms of equipment that might be needed in a critically ill pandemic setting, and specific medical and nursing workforce capability.

Litton et al.<sup>1</sup> concluded that during maximal surge for the COVID-19 pandemic in Australia, an additional 4261 ICU beds (on top of usual capacity) and an additional 4815 machines for mechanical ventilation (not all were standard ICU invasive ventilators) were available. To service this demand, a projected additional 4092 senior medical specialists and 42 720 registered nurses are required based on the modelling.<sup>1</sup> The authors concluded that there is nearly triple capacity available in ICU bed numbers, although highlighting potential invasive ventilator shortage (particularly in standard ICU invasive ventilators).

The article provides critical information regarding bed, equipment, medical, and nursing capacity of ICUs in Australia during the COVID-19 pandemic. Moreover, this information was obtained and published rapidly, so to be of greatest assistance during surge planning. The response rate for the additional survey was exemplary, at 95%, providing a representation of all ICUs across Australia. It also considered other relevant resources such as that within the veterinary setting. The limitations include reliance on existing data (some of which were from 2017/18 and therefore may not represent current capacity), the accuracy of such data, and the accuracy of reported survey answers. However, given the current situation and the urgency the information required, it is difficult to hypothesise how this could be improved.

A major limitation of pandemic planning in Australia during COVID-19 is the general lack of available data regarding critical care specialised AHP workforce capacity and the subsequent available surge response within Australia. The ANZICS CCR registry holds limited data regarding AHP staffing, although the accuracy and source of this information is unclear. Moreover, there are limited data about ratio requirements for critical care specialised AHPs and so surge capacity could not be determined unless these questions were included in the survey sent to ICUs. This is a critical gap, specific to recovery and rehabilitation for patients admitted to the ICU with COVID-19. AHPs have been recognised as essential within the healthcare need framework published by the Intensive Care Society from the United Kingdom,<sup>5</sup> but no such framework exists in Australia and New Zealand. The only available information on AHP ratios in critical care are the *Guidelines for the provision of intensive care services*, published by the United Kingdom's Faculty of Intensive Care Medicine and Intensive Care Society. This document outlines a set of 'standards' (something that *must* be implemented) and 'recommendations' (something that *should* be implemented) in relation to many aspects of critical care, including allied health ratios. For physiotherapy, 1 full time equivalent (FTE)

physiotherapist is recommended per 4 Level 3 ICU beds, 0.05–0.1 FTE per bed for dietitians (pending level of acuity in the ICU) and 0.1 FTE per bed for speech pathologists.<sup>6</sup> The COVID-19 pandemic has highlighted the importance of such standards and recommendations – by having these established, they can be leveraged to inform surge planning during a pandemic. Given COVID-19 is neither the first nor the last pandemic to strain healthcare resources in Australia, it is critically important that such standards be established for critical care specialised AHPs within our local context.

Using internationally accepted minimal staffing levels for allied health in the ICU outlined in the UK recommendations and the data available within the article by Litton et al.,<sup>1</sup> we highlight the possible surge capacity required for dietetics, physiotherapy, and speech pathology in the ICU. This is particularly pertinent, given the international reports of post-ICU patient disability related to COVID-19 – a problem that AHPs can directly intervene.<sup>7,8</sup> The maximal surge presented in the article requires an additional 212–426 dietitians (depending on the ratio applied), 1064 physiotherapists, and 426 speech pathologists to provide care during the period of ICU admission. We do not have data on the proportion above usual staffing levels this represents (as presented in the primary article), but we surmise these projected numbers are far above current capacity and additional workforce capacity is severely limited.

There is also equipment associated with effective allied health care in critical illness that must be considered in any surge planning. For example, critically ill patients who are mechanically ventilated often require nutrition delivery via a feeding pump, a nasogastric tube, and with a specialised medical nutrition formula. Adequate stock of these items is vital to ensure patients are not exposed to increased risk of hospital-acquired malnutrition related to equipment and/or nutrition shortages during a pandemic situation. Similarly, the necessitation of alternative and augmentative communication equipment to establish and promote effective communication for patients during mechanical ventilation is essential to promote involvement in their own care decisions.<sup>9</sup>

The unique skill set provided by critical care specialised AHPs contributes to patient recovery long after the patient leaves ICU, with management targeted at reducing disability and improving function, activities of daily living, and quality of life.<sup>10</sup> Allied health workforce planning and preparation during COVID-19 must be considered when considering comprehensive and evidence-based patient care. The work by Litton et al.<sup>1</sup> has highlighted the significant lack of available data in relation to staffing of critical care specialised AHPs in Australia, and this needs to be urgently addressed.

#### Declaration of competing interest

Emma J Ridley is an Editor of *Australian Critical Care*. This manuscript has been managed throughout the review process by (Andrea Marshall). This process prevents authors who also hold an Editorial role to influence the editorial decisions made. No other conflicts are declared.

#### CRedit authorship contribution statement

**Emma J. Ridley:** Conceptualisation, Writing - original draft, Writing - review & editing. **Amy Freeman-Sanderson:** Conceptualisation, Writing - original draft, Writing - review & editing. **Kimberley J. Haines:** Conceptualisation, Writing - original draft, Writing - review & editing.

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