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High fresh gas flow during non-inhalational anaesthesia during the COVID-19 pandemic. Comment on *Br J Anaesth* 2020; **125**: 773-778

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Keywords: COVID-19; environmental impact; healthcare costs; oxygen; sustainability

Editor—We read with interest the recent article of Zhong and colleagues¹ that provided a useful estimation of the cost and environmental benefits of using a ‘high-flow’ anaesthetic technique without inhalational anaesthetics. However, given the current pandemic status of coronavirus disease 2019 (COVID-19) and surges in case numbers around the world, we wonder if oxygen may be of greater value than just its monetary cost, as attributed by the authors. We agree that medical oxygen and air are relatively inexpensive (estimated costs of AU\$0.40 [~ £0.22; US\$0.28] and AU\$0.028 [~ £0.015; US\$0.02] 1000 L⁻¹, respectively), and that clinicians must take responsibility to reduce the economic burden and environmental impact of medical care. Of note, this study was conducted in Australia before the COVID-19 pandemic; Australia has until recently been relatively spared from the huge numbers of COVID-19-positive patients seen in other countries and from the impact on healthcare systems related to those numbers.

At the time of writing (15 October 2020), Australia had reported 27 364 cases with 904 deaths.² Other countries have been inundated with cases and their healthcare systems have strained to find enough resources to cope: for example, 676 455 cases with 43 383 deaths in the UK, 7 972 886 cases with 217 721 deaths in the USA, and 7 307 097 cases with 111 266 deaths in India.² Many hospitals in these countries have reported nearly, or completely, running out of oxygen as a result of the burden of both ventilated and non-ventilated patients (e.g. in the UK,³ South Africa,⁴ and India⁵).

For a given 6 h case with a circle system, running an inhalational agent-free anaesthetic with fresh gas flows (FGF) of 1 L min⁻¹, 36 L and 126 L of oxygen would be consumed with a fraction of inspired oxygen (FiO₂) of 0.3 and 0.5 respectively. The recommendation of Zhong and colleagues¹ of an FGF of 6 L min⁻¹ would increase the oxygen consumption, for the same length of case, to 252 L and 792 L with FiO₂ of 0.3 and 0.5 respectively. Higher flows may be used for induction and emergence with both modes of anaesthesia, thus allowing a fair comparison. Within the confines of safety, improving cost efficiency and reducing environmental burdens must be a priority.⁶ Given the current shortage of the most precious of medical resources in many countries across the world, we feel that the high-flow anaesthesia suggested here would be best left until after this pandemic has abated.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Psychological impact of COVID-19 on staff working in paediatric and adult critical care

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Preliminary account of results from this study have been published in the College of Anaesthesiologists of Ireland Safety and Quality Newsletter July 2020; Quality and Safety Newsletter.

Keywords: coping strategies; COVID-19; critical care staff; ICU; post-traumatic stress disorder; stress; well-being

Editor—The current pandemic caused by the novel coronavirus, severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2), may have placed critical care staff at increased risk of psychological distress arising from increased workloads, risk of infection and infecting others, difficulties around personal protective equipment (PPE), and moral distress arising from challenges around decision-making with regards to resource allocation and end of life care.^{1–3} Little research has focused on the experiences of paediatric ICU (PICU) staff despite those working in PICU facing challenges such as anticipating the admission of adult coronavirus disease 2019 (COVID-19) patients, staff redeployment to adult hospitals, risk of staff infection from asymptomatic children, and the emergence of paediatric inflammatory multisystem syndrome. The primary objective of our study was to investigate the degree of psychological distress on staff working in both paediatric and adult ICUs in

the setting of the current COVID-19 outbreak. We also sought to evaluate coping strategies and the uptake of currently available staff supports.

We conducted a cross-sectional, observational study at four sites, comprising two adult ICUs and two PICUs. Ethical approval was granted by the National Research Ethics Committee (application number 20-NREC-COV-005). Data collection was between May 7, 2020 and June 5, 2020 by means of online and written questionnaires for staff who did not have access to work e-mails ([Supplementary Appendix S1](#)). All staff within the participating ICUs were eligible to take part. We assessed psychological distress and coping strategies using the Trauma Screening Questionnaire (TSQ),⁴ selected components from Measure of Moral Distress for Healthcare Professionals,⁵ and the Brief COPE tool.⁶ Qualitative data were collected from free-text responses, which are to be published separately (Feeley and colleagues,