6 March 2022

To our Colleagues in the Critical Care Assembly:

Emma Ridley is a leading critical care investigator based in Melbourne, Australia who practices at the bedside as an ICU dietician and who completed her PhD in 2018. **It is our privilege to nominate her for consideration of the Critical Care Assembly's International Early Career Achievement Award.**

The provision of nutrition during critical illness is an internationally accepted medical therapy with the potential for global impact, however the evidence is limited, inconclusive and generally of low quality. Due to the potential for global impact on patient care, it is vital to generate knowledge in this area through systematic, high-quality, robust research. A dietician who practices in the ICU, she has lead an international set of clinical trials that are seeking to place this ubiquitous medical therapy—artificial nutrition of the critically ill—on a firm evidentiary basis through a series of practice-changing clinical trials and tightly coupled investigations.

By the simple numbers, Dr. Ridley's accomplishment is breathtaking and more than meets the Critical Care Assembly's criteria of "exemplary achievements in a scientific area of interest to the Assembly and who demonstrates clear promise for a future of sustained productivity." She already has AUS$8.6 million in research funding, and is listed as principal investigator or co-investigator on a further 3 grants awaiting outcome. She already has 79 publications, and Google Scholar counts over 1300 citations and an H-index of 21. She has already independently designed, executed, and published an important RCT in ICU nutrition. She has been a core member of the leadership team of 2 others. She has a 4th RCT in the field now that has recruited 178 of 240 patients. She has designed and has two more RCTs under review.

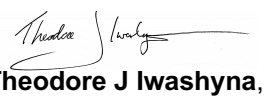
Most prominently in this body of work, Dr Ridley was a key part of the investigation team leading a world first trial into augmented enteral nutrition in critical illness that had global reach and significance (TARGET) (resulting in a *New England Journal of Medicin*e publication of which she is a named author). TARGET investigators hypothesised that increased energy delivery would result in higher 90-day survival compared to routine care. Unexpectedly and at odds with current recommendations, no 90-day survival difference was observed and there was a higher rate of gastric complications in the higher energy group. TARGET represents the highest quality evidence ever obtained globally in the field of critical care nutrition for two reasons; (1) it is the largest critical care nutrition trial ever conducted (n=3957, 46 ICUs in Australia and New Zealand (ANZ)) and; (2) It was double blind in design, which is rare and difficult to achieve in nutrition studies. Furthermore, it was logistically successful, completing randomisation in 17 months resulting in rapid knowledge generation and translation potential.

Leading up to her PhD, Dr Ridley independently led 6 pieces of work including a multicentre, multinational 100 patient randomised controlled trial (RCT) conducted in 6 centres in ANZ from concept development to publication (Ridley et al Crit Care, 2018). This trial was recently included in the 2022 update of the American Society of Parenteral and Enteral Nutrition Critical Care Clinical Practice Guidelines (Compher et al, JPEN J Parenter Enteral Nutr. 2021 Epub ahead of print. PMID: 34784064).

The work within her PhD program led to the development of an innovative, world-first research project (ClinicalTrials.gov; NCT03292237) for which she successfully negotiated $2.4M of independent, unrestricted industry funding prior to PhD completion. Dr Ridley now leads this 23 site multi-centre, multinational 240 patient RCT as Principal Investigator ("CIA" in the Australian terminology); as noted, 178 patients are already enrolled. The project will test hypotheses about the impact of nutrition across the whole hospitalisation period following critical illness (of which we know very little)—integrating ICU nutrition with the general wards to see if such integration offers improved healing.

These large clinical trials are complemented by work to support rapid translation. Dr Ridley recognised a gap in our understanding of what current practice is regarding nutrition provision for critically ill patients. In 2020, Dr Ridley negotiated unrestricted industry funding and led a national practice survey in 44 hospitals across Australia to address this gap. She has insured her trials are designed, powered, and recruit to adequately study potentially differential effects of artificial nutrition between obese and non-obese patients. Her current trial has a nested sub-study that tests for effect modification by bedside objectively measured muscle health (bioimpedance technology and ultrasound).

In sum, Dr. Emma Ridley is a superb independent early career independent clinician scientist bringing physiologically-nuanced, empirically rigorous data to bear on a ubiquitous intervention delivered in every ICU around the world. She has both a fantastic independent track record and a body of collaborative science that we believe are fully worthy of this award, and that we look forward to her deeper integration into our Critical Care Assembly.



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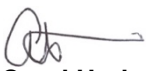

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