Mechanical cardiorespiratory support was born in 1953, courtesy of John Gibbons’ cardiopulmonary bypass machine. Since then, support for failing heart and lungs has progressed in many formats, both acute and long-term. The first implantable ventricular-assist device (VAD) was implanted by Liotta in 1963, and another soon after by De Bakey. Extracorporeal membrane oxygenation (ECMO) grew equally from Gibbons’ oxygenator (with the first successful case report published in 1972) and Bob Bartlett’s procedures (with the success of baby Esperanza’s treatment in 1976), which he followed with the first randomised prospective study of 28 patients in the late 1970s.1

High-quality evidence for the efficacy of mechanical support has been difficult to acquire. The first randomised controlled trial of ECMO, by Zapol and colleagues in the late 1970s, proved to be unsuccessful.2 VADs began to be approved by the National Institutes of Health in the United States in the early 1980s, with Jarvik (Jarvik Heart) and Novacor (World Heart) devices, but it was not until 2001 that the REMATCH study showed the superiority of HeartMate (Thoratec) VAD support versus optimal medical management in refractory heart failure.3 Similarly, the CESAR trial was the first randomised controlled trial of treating acute respiratory distress syndrome in an ECMO-competent hospital.4 It could be argued that ECMO itself was not shown to be beneficial, but the study definitely resulted in increased use of the modality and a growth in research to maximise its utility. This was followed by the experiences of hospitals in Australia and New Zealand, among others, during the H1N1 epidemic in 2009.5

It is clear, however, that the risk–benefit ratio in mechanical support has still not been optimised. The devices are expensive, cumbersome and associated with a significant number of physiological side-effects, most commonly bleeding, clotting and infection. The complex interplay between the triptych of patient, pump and pathophysiology has been incompletely described.6 Increased uptake of these devices will not be achieved until our understanding of the crosstalk between engineering and biology is more precisely delineated.7 It is clear that mechanical support is only undertaken in the most critically unwell patients. They are the most at risk, and they also have the most to gain. Therefore, is it incumbent on the ECMO team to work together and improve our collective understanding of the device and its usage patterns and associated pathology. This can only occur when the entire team comes together to share experiences, successes and, possibly more importantly, failures.

While the progress of global research gathers pace, it is the rate of research growth in some Asian countries that is fast outpacing countries in Europe, the US and Australia. The level of innovation and hunger for new ideas across the Asia–Pacific region is well known, and is the envy of the “old world”. It is therefore entirely appropriate that we bring together the best and brightest from the Asia–Pacific region, and also from Europe and the Americas. We gather with a vision of learning from each other and are united in our drive to find ever-improved ways to design, build and achieve better processes and outcomes in ECMO... and beyond. We hope the coming together of patients, clinicians, scientists, politicians, and industry produces not only a fantastic meeting, but also a seedling to grow our understanding in this rapidly expanding field of medicine, and to ensure that our patients thrive, rather than just survive.

Therefore, it is with great pleasure that we welcome the participants of the 3rd Asia–Pacific Extracorporeal Life Support Organization (APELSO) to Queensland. The coming of age of mechanical support can be seen concurrently with the coming of age of the Critical Care and Resuscitation journal, the official journal of the College of Intensive Care Medicine of Australia and New Zealand. Such is the importance of this meeting that it was felt appropriate for us to publish the first supplement to the Journal, which now has the highest impact factor for critical care medicine in the region. We chose to publish a selection of key APELSO contributions in the first Critical Care and Resuscitation supplement to highlight and demonstrate our professional aspirations in the most rapidly changing part of the world. This indicates a strong editorial commitment to embrace the evolution of intensive care practice, research and technology, not only in Australia and New Zealand but also in the Asia–Pacific region.

Competing interests
None declared.
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