

Future Nostalgia: Trauma Care in 2029

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In the talk "*Future Nostalgia: Trauma Care in 2029*," we explore the evolving landscape of trauma care, reflecting on the challenges and recent advancements shaping practice today. We'll assess the current state of play, look forward to what the next five years for trauma care may hold, highlight some innovative clinical trials currently recruiting, and imagine what trauma care may look like in 2029.

Looking back over the previous five years, major randomised controlled trials have produced some disappointing outcomes.¹⁻⁷ Despite this, high performing trauma systems across the world continue to excel in delivering quality care for their communities. We will discuss the limitations of traditional trial designs and explore how next generation adaptive platform trial designs combined with Bayesian analysis are poised to accelerate trauma research.^{8,9}

A case study of a 73-year-old trauma patient illustrates the current hurdles in trauma care, such as cumbersome patient transfers, decision making around treatment priorities, and the complexities of an aging trauma population.

We introduce the concept of a hybrid emergency resuscitation room, combining CT scanning, interventional radiology and surgical facilities in a single room, down in the ED, at the point of patient reception.^{10,11} This capability brings together multiple services needed to diagnose and stop bleeding in one place, creating a harmonious trauma resuscitation and definitive management team. Early data from trauma centres in Japan suggest a reduction in time to haemostasis, and impressive improvements in clinical outcomes with this model.¹²

Our discussion also covers advancements in pre-hospital care, particularly the use of freeze-dried plasma and whole blood for trauma patients. Freeze-dried plasma has recently been proven to be feasible and safe in Victoria, Australia,¹³ but we await a local RCT to show its treatment effect. On the other hand, the SWIFT randomised controlled trial aims to determine the efficacy and

cost-effectiveness of civilian pre-hospital whole blood, with recruitment scheduled to finish in 2026.¹⁴

We further explore innovations in traumatic brain injury (TBI) management, specifically brain tissue oxygenation (PbtO₂) monitoring.^{15–17} This promising technology has the potential to become a new standard of care, with the ongoing trials BOOST-III and BONANZA expected to confirm whether PbtO₂ monitoring is effective in reducing brain tissue hypoxia and improving neurological outcomes.¹⁸ TBI protocols are expected to become refined and individualised, informed through big data and multi-centre collaboration (PRECISION-TBI).¹⁹ Looking even further ahead, artificial intelligence may enhance neuro-prognostication, helping to guide treatment decisions for TBI patients (PREDICT-TBI).²⁰

And most importantly, as we look toward 2029, we envision a more central role for anaesthetists, intensivists, and perioperative physicians in trauma care. With the trauma patient population aging and becoming more medically complex, cross-specialty trauma services are poised to lead the way in patient-centred trauma care. By embracing innovation and interdisciplinary collaboration, anaesthetists are not just confined to the operating room but are integral throughout the entire patient journey, from initial resuscitation to post-discharge care. Trauma care is increasingly moving out of the operating room – will you keep up?

References

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