

Title: Reply to “Epidural catheters and sterile precautions”

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We thank Dr Wang for contributing to an ongoing discussion regarding the use of sterile gowns in neuraxial procedures. Dr Wang cautions that the [Australian and New Zealand College of Anaesthetists \(ANZCA\)](#) should not follow other anaesthesia societies that indicate routine gowning is not routinely required when performing neuraxial procedures ([including those from North America and much of Europe](#))<sup>1-3</sup>. Dr Wang raises concerns regarding the prioritisation of sustainability over the medical management of patients, [while acknowledging](#) the need to maintain safe anaesthesia techniques.

We agree that needs of the individual patient remain the priority for clinicians. However, in the case of routine gowning for neuraxial procedures, we disagree that this practice be considered the “most safe” or “optimal care”. As we pointed out in our original correspondence, there appears to be no evidence to suggest that the use of sterile gowns reduces the risk of infectious complication following a neuraxial procedure. Indeed, there is only evidence for ‘colonisation’ (not infection), and the only [randomised controlled trial](#) on that topic reports no significant difference in catheter colonisation rates when gownned and ungowned proceduralists perform epidurals.<sup>4</sup> The current evidence indicates that spinal anaesthesia without gowning is a safe anaesthesia technique and is commonly practiced in many other high-resource healthcare systems.

While sterile gowns are recommended by ANZCA, they have never been included [in guidelines from the United States, and guidelines from the United Kingdom](#) have recently softened their approach.<sup>1,2</sup> There is no explanation provided for ANZCA’s recommendation of gowning for neuraxial procedures and this guideline is older than the aforementioned.<sup>5</sup> Once a practice is established in a guideline, its removal can become more difficult than [representing](#) the new status quo. For example, routine supplemental oxygen in caesarean delivery was standard practice until a 2016 Cochrane review found no evidence of benefit.<sup>6,7</sup> Now this intervention is largely considered superfluous, and its avoidance has resulted in significant reduction in environmental harm<sup>7</sup>. Given the rare incidence of infectious complications from neuraxial procedures, however, a systematic review and meta-analysis is unlikely to be produced on the topic of sterile gowns.

Amid a climate crisis, governments and organisations have committed to improved sustainability in the healthcare sector and set targets of “net zero” emissions.<sup>8</sup> Dr Wang asserts that the environmental benefit of reduced gowning “relies on theoretical evidence and extrapolation, rather than scientific evidence”. Ironically, this is the case for guidelines which advocate for their use. Life cycle analysis (LCA) shows clear evidence of the environmental impacts associated with sterile gowns.<sup>9</sup> This is an established scientific method used to analyse the environmental impact of a product or process.<sup>9</sup> In this case, it is clear that a reduction in the number of sterile gowns used would result in environmental (and financial) benefit through reduced carbon emission, waste generation, energy and blue water consumption.

Individual patient health is an essential consideration in the decarbonisation of health care. However, current evidence suggests that sterile gowns are of no value in the prevention of infectious complications from neuraxial procedures. Furthermore, the avoidance of unnecessary gowning has the potential to reduce carbon emission and financial cost to [Australia’s and New Zealand’s](#) health systems. We do acknowledge that implementation of new or different [practice](#) can be challenging, hence our call to ‘re-evaluate’ the use of gowns. Perhaps an effort to cease the routine use of gowns for single-shot spinal anaesthesia (rather than continuous/catheter-based techniques), which is consistent with European paediatric guidelines, would be an achievable first step?<sup>10</sup>

#### **Potential conflicts of interest:**

Forbes McGain is on the [Australian and New Zealand College of Anaesthetists](#) working party reviewing the infection prevention guidelines.

Cliff Shelton is the Co-chairperson of the Association of Anaesthetists of Great Britain and Ireland's Environment, Sustainability, Safety and Standards Committee, but the opinions in this letter are his own at the time of submission.

### **References:**

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