

measures to reduce the bias, for example, eliminate bias in inclusion and exclusion criteria for each study.<sup>10</sup> This would require change in policy at the level of the Health Research Authority. Once these changes are implemented, there is much scope for improving the quality and validity of research, leading to improved patient care.

### Declarations of interest

The authors declare that they have no conflicts of interest.

### Acknowledgements

Georgios Bouliotis provided statistical analysis. We thank Teresa Melody for conception of the idea and supervision.

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doi: 10.1016/j.bja.2020.05.030

Advance Access Publication Date: 20 July 2020

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## Importance of inclusion criteria in systematic reviews

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**Keywords:** laryngeal mask airway; manikin; pandemic; personal protective equipment; tracheal intubation; videolaryngoscope

Editor—Sorbello and colleagues<sup>1</sup> offer us the opportunity to further clarify the inclusion criteria of our recent review of simulated airway management whilst wearing personal protective equipment (PPE),<sup>2</sup> and to discuss other aspects pertinent to systematic reviews. We included in our review simulation studies comparing devices for airway management regarding the time-to-intubation, success rates, or both, conducted with participants wearing PPE.<sup>2</sup> The authors<sup>1</sup> claim that they identified six articles missing from

our systematic review,<sup>2</sup> casting doubt on our search strategy, screening, or inclusion criteria. We thank the authors for identifying one study<sup>3</sup> that should have been included. This article was identified in our literature search but was excluded as result of human error (mistaken for another study with same first author/journal [Schumacher/ *Anaesthesia*]). This article was added in the updated version of the table while in press (see footnotes of the original article).<sup>2</sup> Addition of this article to our analysis did not

**Table 1** Population, Intervention Comparison Outcome(s) Study design (PICOS) criteria for references that were excluded from our systematic review.<sup>2</sup> PPE, personal protective equipment; SADs, supraglottic airway devices. ✓=PICOS criteria matched; ✗=PICOS criteria NOT matched.

PICOS criteria	Schumacher, Anaesthesia 2017	Begley, Anaesthesia 2020	Fregene, Anaesthesia 2020	Yang, Br J Anaesth 2020	Schumacher, Emerg Med J 2009
Population: participants with or without prior airway management experience, performing the intervention whilst wearing PPE in a simulated adult scenario	✓	✓	✓	✓	✓
Intervention: airway management with two or more devices (SADs, or devices for intubation or cricothyrotomy)	✗	✗	✗	✓	✗
Comparison: studies comparing at least two SADs, or two devices/techniques for intubation, or two approaches for cricothyrotomy	✗	✗	✗	✓	✗
Outcome(s): time-to-intubation (or to correct placement), success rate (time-related and overall), or both	✓	✓	✗	✗	✓
Study design: comparative prospective studies conducted on manikins or simulators	✓	✓	✓	✓	✓

change the conclusions of our systematic review<sup>2</sup>: we identified a paucity of studies with significant heterogeneity that limited any meaningful statistical analysis. Consequently, we believe there is an urgent need for more studies in this area.

The other five articles suggested by Sorbello and colleagues<sup>1</sup> do not meet our original PICOS criteria (Table 1). These suggestions could result from misinterpretation of PICOS criteria, to errors in the literature search/appraisal, or both. As a general learning point for readers interested in systematic reviews, it has been advised that at least two investigators perform the literature search/screening in order to reduce the possibility of rejecting relevant reports.<sup>4</sup> When performing systematic reviews, articles should be included or not (with reasons) according to the PICOS criteria. The clause 'it may also have been included'<sup>1</sup> applies to reviews but not to systematic reviews.

Sorbello and colleagues<sup>1</sup> commented that we did not consider such critical operator demographics as the background and experience of airway operators, and also that we compared highly varied PPE. These comments were unexpected as we reported that 'The participants in these studies ranged from paramedic students to anaesthesiologists,' giving a concise summary of the vast range of experience in the selected studies. It is superfluous to discuss in detail that paramedic students have lower experience than anaesthesiologists do. As to the second comment, we reported that 'The type of PPE worn also varied greatly',<sup>2</sup> explaining another source of heterogeneity in the included studies. These items were also reported in separate columns of the table in the systematic review.<sup>2</sup> Further discussion of these sources of heterogeneity would have been interesting but the strict correspondences word count limit prevented this.

We agree with Sorbello and colleagues<sup>1</sup> on several priorities that need to be addressed regarding airway management limited by wearing PPE. The scope of our review<sup>2</sup> was not to rank these priorities, but rather to explore one of them systematically. All scientists interested in airway management

should be encouraged to design studies addressing critical issues in airway management whilst wearing PPE.

Sorbello and colleagues<sup>1</sup> closed their letter with a Chinese proverb 'when the wise man points at the moon, the fool looks at the finger' justified on the assumption that we investigated 'how limited airway management is by PPE'.<sup>1</sup> However, this was not the focus of our systematic review, otherwise we should have included studies with a control group managing airways whilst not wearing PPE as a 'comparison item' (PICOS). We emphasise the importance of following the PICOS criteria when designing and evaluating systematic reviews.

## Declarations of interest

The authors declare that they have no conflicts of interest.

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doi: 10.1016/j.bja.2020.07.010

Advance Access Publication Date: 29 July 2020

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