

than in previously reported work using traditional laryngoscopy methods as a part of a treatment algorithm [4].

The 'before' group in our study included patients treated before implementation of the rapid sequence induction protocol. The majority of these intubations were performed with traditional Macintosh laryngoscope and a stylet. The C-MAC videolaryngoscopy and a bougie were available, but most physicians considered them to be rescue devices.

Unfortunately, we do not have precise data on the intubation techniques in the control group.

The question about comparing C-MAC and bougie or stylet is challenging. The sample size required to compare these would be very large, as the treatment effect (i.e. failure to intubate at the first attempt using our protocol) is very small. Using observational registry data instead is likely to be confounded by multiple variables.

We agree that the focus of developments in airway management is moving from cord visualisation towards efficient and safe advancement of the tracheal tube. We chose the Frova introducer for our protocol for its special features (relative stiffness, controllability, visibility), which enable the laryngoscopist to identify the trachea in suboptimal visual conditions by feeling the 'clicks' transmitted when crossing tracheal rings, and the distal hold-up or cough signs [5].

Sparrow et al.'s new technique looks interesting, and we are looking forward to the formal presentation of their data.

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References

1. Ångerman S, Kirves H, Nurmi J. A before-and-after observational study of a protocol for use of the C-MAC videolaryngoscope with a Frova introducer in pre-hospital rapid sequence intubation. *Anaesthesia* 2018; **73**: 348–55.
2. Lockey D, Crewdson K, Weaver A, Davies G. Observational study of the success rates of intubation and failed intubation airway rescue techniques in 7256 attempted intubations of trauma patients by pre-hospital physicians. *British Journal of Anaesthesia* 2014; **113**: 220–5.
3. Lockey DJ, Crewdson K, Davies G, et al. Association of Anaesthetists guidelines: safer prehospital anaesthesia. *Anaesthesia* 2017; **72**: 379–90.
4. Harris T, Lockey DJ. Success in physician prehospital rapid sequence intubation: what is the effect of base speciality and length of anaesthetic training? *Emergency Medicine Journal* 2011; **28**: 225–9.
5. Hodzovic I, Wilkes AR, Stacey M, Latto IP. Evaluation of clinical effectiveness of Frova single-use tracheal tube introducer. *Anaesthesia* 2008; **63**: 189–94.

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DAS guidelines on the airway management of critically ill patients

We thank Professors Pandit and Irwin for their interest in the DAS guidelines for airway management in the critically ill [1], prompting

their recent editorial [2]. We anticipated that the publication of these guidelines would stimulate healthy debate and are grateful for the opportunity to reflect on some of the points raised in the editorial.

Defining 'the critically ill patient' is extremely difficult and we intentionally did not do so. To describe all situations where a patient might be considered critically ill is clearly impractical. The paper encourages clinical staff to use their own clinical judgement to decide whether the patient is critically ill. We empowered the clinician to decide whether the guidelines are appropriate to their circumstance, while making it clear that are likely to apply to many patients in the emergency department and critical care unit, but also out with these locations too.

The authors suggest, by adopting the **MACOCHA risk tool**, we are dichotomising airways into 'not difficult' and 'difficult'. We believe the situation is a little more nuanced than that. Difficulty likely exists on a spectrum, with anatomical, physiological, pathological and logistical factors all interacting in determining the degree of likely difficulty. We recommend the validated MACOCHA tool as useful in identifying a group of risk factors and a **threshold above which all intubations should be considered 'higher risk'** than most critically ill patients'.

The editorial reinforces the recommendations of the guideline around equipment provision, which we welcome. We hope readers will recognise that our recommendations are an evolution of the

work of previous DAS guidelines, and many will note that video-laryngoscopes with a screen and second generation supraglottic airway devices were significantly emphasised in the 2015 anaesthesia guidelines.

The authors are also correct in identifying that the person managing the airway need not be an anaesthetist. This situation is common outside the UK and increasingly common in the UK. However, we do emphasise that even the most experienced airway manager is more likely to encounter problems when managing the airway of the critically ill. The guidelines specify several team models in which four, five or six members may be assembled, including a single or two intubators. We have defined a team and their roles because: (1) there are more roles required during intubation in critical care than in the operating room; (2) those roles may be unfamiliar to some; (3) defining the team seems central if the group are then to be involved in teamwork; and (4) in this setting things ‘go wrong’ more often (e.g. cardiovascular collapse, the need to call for additional help), requiring additional rescue plans.

The authors offer several opinions on ‘Anaesthetic practice details’ including: the definition of rapid sequence induction; the importance of drug selection in avoiding awareness during airway difficulty; maintaining oxygenation during apnoea (per-oxygenation); and the practicalities of using bougies and stylets. These are matters each too large to address in detail but have been ‘hot topics’ in the pages of this journal,

other journals and indeed social media. We hope that readers of the guidelines will realise we have tried to balance assimilation of an incomplete evidence base with practical and pragmatic guidance on how to maintain physiological stability and minimise patient harm in this high-risk group.

Regarding extubation, we would like to dispel any impression that we recommend assembly of an intubation team for the process of extubation. As all intensivists will recognise, unlike during routine anaesthesia, critically patients have a relatively high rate of requiring re-intubation, usually during the first 24 h after extubation (though only infrequently in the first hour). It is for this reason that extubation of the critically ill might be considered a ‘trial’, and should that trial fail – at that point, although not before – it is logical to reassemble the appropriate team as before to undertake the re-intubation process. For clarity, the guideline does not suggest that ‘extubation teams’ are required in an intensive care unit, nor does it recommend any changes to the timing of extubation from that currently practiced, that is, when clinically-indicated, with the proviso that should re-intubation be required that can be facilitated safely.

Unlike the authors, we do not believe these guidelines are a call for the Difficult Airway Society to refocus its direction or research, but we certainly agree that airway management is merely a process by which to achieve safe oxygenation (and ventilation) of the patient. We hope the guidelines emphasise this.

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References

1. Higgs A, McGrath BA, Goddard C, et al. Guidelines for the management of tracheal intubation in the critically ill adult. *British Journal of Anaesthesia* 2018; **120**: 323–52.
2. Pandit JJ, Irwin MG. Airway management in critical illness: practice implications of new Difficult Airway Society guidelines. *Anaesthesia* 2018; **73**: 544–8.

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Difficult Airway Society guidelines on the airway management of critically ill patients. A reply

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References

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correctly) extend the scope of these guidelines.

We would like to comment on just two aspects of their letter. The first is the debate around whether prediction inevitably or not leads to dichotomous decision making [2, 3]. Although we agree that all judgements about difficult airways lie on a spectrum, the authors' own letter indicates that a dichotomous decision has to be made at some point. By analogy, the probability of rainfall lies on some continuous spectrum but the decision as to whether or not to take an umbrella is clearly dichotomous.

The second concerns whether or not a team should be assembled for extubation in those patients anticipated and managed as difficult at tracheal intubation. The authors now clarify that they did not intend to give an impression that a team should be assembled, yet this remains a strong implication of what they wrote. We suspect there will need to be more detailed review or discussion of these requirements. The requirement for re-intubation might either be something that emerges slowly (e.g. as when gas exchange and oxygenation cannot be maintained, apparent only after some time), and a team may be assembled in good time once that judgement has been made. Or, it might be something that is apparent immediately (e.g. as when there is immediate upper airway obstruction after extubation). It remains apparent to us that these new guidelines do imply assembling a team where the latter is considered a real possibility, for the same reasons as a

team is advised for intubation in the first place.

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References

1. Pandit JJ, Irwin MG. Airway management in critical illness: practice implications of new Difficult Airway Society. *Anaesthesia* 2018; **73**: 544–8.
2. Pandit JJ, Heidegger T. Putting the 'point' back into the ritual: a binary approach to difficult airway prediction. *Anaesthesia* 2017; **72**: 283–8.
3. Greenland KB, Bradley WPL, van Zundert A, et al. Airway assessment/management paradigm – does a spectral or a binary approach fit better? *Anaesthesia* 2017; **72**: 1035–8.

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An indication for a throat pack?

Bailey et al. suggest that the need for a throat pack is often either equivocal or absent, and that because of the risk of accidental retention, it is best to avoid using one if possible [1]. They also recommend measures to minimise the chance of accidental retention when a throat pack is employed. However, Bailey et al. do not address the prevention of tooth or bone fragment aspiration. Likewise, this issue

is only briefly touched on in the review article on throat packs by Athanassoglou et al. [2], which the editorial accompanies.

In my own clinical practice, the principle indication to insert a throat pack is for paediatric dental extractions. The rationale is that a throat pack is likely to catch any tooth or bone fragments; these will then be removed with the throat pack before extubation, and so not be at risk of being aspirated into the bronchial tree. An alternative would be to not use a throat pack and remove any such fragments at the end of surgery by suctioning the airway under direct vision. Could I invite Bailey et al. to comment on the relative efficacy of throat pack use and suctioning to remove debris from the paediatric airway?

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References

1. Bailey C, Nouraei R, Huitink J. Have we reached the end for throat packs inserted by anaesthetists? *Anaesthesia* 2018; **73**: 535–8.
2. Athanassoglou V, Patel A, McGuire B, et al. Systematic review of benefits or harms of routine anaesthetist-inserted throat packs in adults: practice recommendations for inserting and counting throat packs. *Anaesthesia* 2018; **73**: 612–18.

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