

## EDITORIAL

### Expert recommendations for managing difficult airways in adults and children: insights from the Brazilian Society of Anesthesiology (SBA)



In the ever-evolving field of anesthesiology and critical care, the effective management of difficult airways remains a critical challenge. Published more than ten years ago, the 4th United Kingdom National Audit Project (NAP4) has estimated an incidence of major airway management complications during anesthesia to be approximately 1:22,000 with a mortality rate of 1:180,000.<sup>1</sup> An analysis of closed malpractice claims related to difficult intubation from 2000 to 2012 demonstrated that airway management was judged to have been inappropriate in 73 percent of 102 assessed claims and included inadequate evaluation, failure to plan for difficult intubation, failure to use a supraglottic airway for rescue, delay in calling for help, and perseveration on failed techniques.<sup>2</sup>

Airway management in children differs from that in adults, just as neonates and infants differ from older children. An observational study across 261 hospitals in Europe has shown that airway management practices in children vary extensively across different countries and institutions.<sup>3</sup> This study has demonstrated that three or more tracheal intubation attempts were necessary in 0.9% of children and the overall incidence of failed tracheal intubation was 8/10 000 (0.08%) in pediatric patients.<sup>3</sup> Altogether these findings reinforce the rationale that straightforward airway management techniques are essential skills for healthcare professionals.

As we delve into the latest advancements, this editorial aims to provide a comprehensive overview of the recommendations for the management of difficult airways put forth by a group of experts from the Brazilian Society of Anesthesiology (SBA) in this issue of the Brazilian Journal of Anesthesiology.<sup>4,5</sup> Their recommendations for both adults and children may offer invaluable insights that can shape contemporary clinical practices.

The management of the difficult airway demands a nuanced understanding of anatomical variations, patient characteristics, and the application of cutting-edge

techniques. With advancements in medical technology, the landscape of airway management continues to evolve. The Brazilian Society of Anesthesiology, drawing on the collective expertise of its members, has distilled a wealth of knowledge into a set of recommendations designed to guide anesthesiologists through the complexities of adult and pediatric airway challenges. The present recommendations are extensively based on recent international guidelines,<sup>6–8</sup> and are specially designed to support professionals working in low and middle-income countries.

A revision of the practice guidelines for the management of the difficult airway by the American Society of Anesthesiologists (ASA) Task Force has been recently published,<sup>6</sup> long expected in order to include techniques that greatly evolved in the last decade. The ASA guidelines differ from previous publications since they were developed by an international task force representing several medical organizations. Other societal and international guidelines addressing the management of difficult airways have been published, but according to AGREE II criteria for the quality of the guideline creation process, the most recent ASA guideline outperforms its predecessors.<sup>9</sup> Although all guidelines proceed with the same purpose, some discrepancies have been highlighted between the different societal recommendations,<sup>10</sup> and local practices, availability of resources and recent technologies may be related to some of these differences.

Both articles are structured around pertinent questions and answers, offering straightforward tools to assist clinicians in making crucial decisions when managing the difficult airway. These resources are designed to ensure gradual and objective approaches to the difficult airway. Importantly, decision-making relies on a rational approach, the expertise and skills of the airway operator, and the specific clinical context in which airway management is undertaken. These documents aim to standardize the approach to both anticipated and unanticipated difficult airway management regardless of the different expertise of the professionals

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involved. The authors emphasize the need for cautious pre-anesthetic airway assessment and adequate preparation before patient induction. This preparation includes adopting a strategy before approaching the airway, immediate availability of airway devices, and adequate patient positioning and monitoring. Significant attention is given to the use of ultrasound to evaluate the airway and its role in identifying the cricothyroid membrane. Furthermore, these recommendations emphasize the pivotal role of preoxygenation and oxygen administration (including apneic oxygenation) throughout the entire airway management procedures, including extubation.

In adults, the experts strongly recommend performing awake tracheal intubation in case of suspected difficult laryngoscopy, associated with suspected difficulty with face-mask or supraglottic ventilation, increased risk of aspiration, decreased apneic tolerance, or suspected difficulty with emergency invasive airway rescue.<sup>4</sup> If the strategy adopted is to proceed with intubation after induction of general anesthesia, the guidelines recommend identifying a preferred sequence of airway devices, being aware of elapsed time and oxygen saturation, and limiting the number of attempts to prevent potential complications. In this context, the most recent evidence regarding the use of videolaryngoscopy, its advantages, indications, and limitations are further discussed. The experts overall agree that videolaryngoscopy has clear advantages over direct laryngoscopy for tracheal intubation, especially when the first attempt is unsuccessful, or when the airway is known to be difficult. Despite some unanswered questions, the available evidence supports the safety and efficacy of videolaryngoscopes when compared to direct laryngoscopes.<sup>11,12</sup>

The airway strategy should be based not only on the clinician's experience but also on the accessibility of the equipment and the context in which airway management is performed. Unexpected difficult airway management represents a challenging scenario and the authors emphasize the importance of asking for help, aiming to optimize the patient's oxygenation, and considering the possibility of waking the patient before an invasive approach to the airway is warranted. The document places specific emphasis on the confirmation of tracheal intubation, emphasizing the guidance provided by capnography. Additionally, updated recommendations for the extubation of difficult airway cases are highlighted.

In terms of airway management in children,<sup>5</sup> considerable attention has been dedicated to defining a difficult airway within the pediatric population and assessing a child's airway. The discussion delves into specific insights on managing a recognized difficult airway, including the criteria for choosing between videolaryngoscopy or fiberoptic bronchoscopy in children. Recognizing the pivotal importance of ensuring adequate oxygenation during pediatric anesthesia induction and airway management, additional insights are provided, focusing on the restoration of ventilation and oxygenation in scenarios involving anatomical obstructions and on the options of low- and high-flow apneic oxygenation. This encompasses optimizing face mask ventilation, appropriately indicating and utilizing supraglottic devices, and selecting the correct anesthetic drugs, depth of anesthesia, and use of neuromuscular blockers. Finally, experts offer further commentary on various pertinent topics. These encompass a robust recommendation to restrict the number

of intubation attempts, potential strategies for optimizing laryngoscopy, confirming tracheal intubation, ensuring the safe extubation of pediatric patients with a difficult airway, and addressing the procedures for an emergency pathway in the challenging scenario of "cannot intubate, cannot ventilate".

A notable feature of both documents is the customized approach to handling difficult airways in both adults and children. Recognizing the distinctive anatomical and physiological aspects in pediatric patients, the recommendations offer insights into the nuances specific to this population. By addressing challenges across various age groups, these recommendations guarantee a comprehensive and adaptable strategy, including a more in-depth discussion about human factors and non-technical skills, elucidating their role in the management of a difficult airway.

Remarkably, the two documents presented by the Brazilian Society of Anesthesiology are not formulated as guidelines, as they do not adhere to international guideline recommendations. Instead, they take the form of narrative articles crafted to review the latest information derived from recent guidelines and references in the field. The objective is to tailor these recommendations to the context of Brazil and other comparable low- and middle-income countries, acknowledging the constraints imposed by limited healthcare resources in these regions. The experts emphasize the importance of adapting guidelines to the local reality, particularly in consideration of the availability of new technologies, including supraglottic devices, videolaryngoscopes, fiberoptic bronchoscopes, and ultrasound devices. Of note, Portuguese translations of the 2022 ASA practice guidelines for managing difficult airways are now officially accessible.<sup>13,14</sup> This marks a noteworthy stride in disseminating knowledge across our country and other nations should consider adopting similar strategies to enhance adherence to these protocols.

In summary, as we navigate the dynamic landscape of anesthesiology and critical care, the expert recommendations provided by the Brazilian Society of Anesthesiology,<sup>4,5</sup> in association with recent international guidelines,<sup>6,13,14</sup> emerge as a beacon of knowledge in the realm of difficult airway management. By synthesizing the most up-to-date information, this editorial aims to not only shed light on the airway expert's insights but also encourage a continued dialogue within the medical community, fostering a collaborative and ever-improving approach to the challenges posed by difficult airways in adults and children. Ultimately, the effectiveness of any set of recommendations lies in its real-world impact on patient outcomes.

## Conflicts of interest

The authors declare no conflicts of interest.

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André P. Schmidt  <sup>a,b,c,d,e,f,g,\*</sup>

<sup>a</sup> Hospital de Clínicas de Porto Alegre (HCPA), Serviço de Anestesia e Medicina Perioperatória, Porto Alegre, RS, Brazil

<sup>b</sup> Universidade Federal do Rio Grande do Sul (UFRGS), Instituto de Ciências Básicas da Saúde (ICBS), Departamento de Bioquímica, Porto Alegre, RS, Brazil

<sup>c</sup> Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSA), Santa Casa de Porto Alegre, Serviço de Anestesia, Porto Alegre, RS, Brazil

<sup>d</sup> Hospital Nossa Senhora da Conceição, Serviço de Anestesia, Porto Alegre, RS, Brazil

<sup>e</sup> Universidade Federal do Rio Grande do Sul (UFRGS), Faculdade de Medicina, Programa de Pós-graduação em Ciências Pneumológicas, Porto Alegre, RS, Brazil

<sup>f</sup> Universidade Federal do Rio Grande do Sul (UFRGS), Faculdade de Medicina, Programa de Pós-graduação em Ciências Cirúrgicas, Porto Alegre, RS, Brazil

<sup>g</sup> Faculdade de Medicina da Universidade de São Paulo (FMUSP), Programa de Pós-Graduação em Anestesiologia, Ciências Cirúrgicas e Medicina Perioperatória, São Paulo, SP, Brazil

\* Corresponding author:

E-mail: [apschmidt@hcpa.edu.br](mailto:apschmidt@hcpa.edu.br)

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