

## Foreign Body Removal – Relax!

*To the Editor:*

In the December issue, AuBuchon *et al.* from the Washington University School of Medicine in an Images in Clinical Medicine presentation of a high tracheal foreign body noted that “First, spontaneous ventilation is recommended.”<sup>1</sup> This same assertion is made again later in that issue in a paper from the same institution describing pediatric perioperative scenarios for use in simulation where “maintenance of spontaneous ventilation” was considered the correct response for a scenario of airway foreign body.<sup>2</sup> These two would make it seem that this is a clear requirement for caring for these children. Would any of the authors care to address several papers that have shown no advantage to spontaneous ventilation (and with a significant incidence of conversion to controlled ventilation) in a review of 94 patients;<sup>3</sup> that concluded there was no advantage to the avoidance of muscle relaxants in a series of 287 cases (inactivity with inhalational agent and muscle relaxant was “imperative”);<sup>4</sup> that found there were more problems with spontaneous ventilation than controlled ventilation with the use of muscle relaxants in a series of 384 patients;<sup>5</sup> or that concluded in a literature review of almost 13,000 patients that there is no apparent reason to avoid muscle relaxants?<sup>6</sup>

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*In Reply:*

Thank you for identifying the controversy about the role of spontaneous ventilation and neuromuscular blockade. The management of airway foreign bodies and use of neuromus-

cular blockade should be individualized based on factors such as the location and type of foreign body.<sup>1</sup> The image of a sunflower seed wedged at the cricoid ring reinforces the anesthetic management principle of maintaining spontaneous ventilation and avoiding neuromuscular blockade.<sup>2</sup>

In this child, neuromuscular blockade and positive pressure ventilation could displace the larger proximal portion of this sunflower seed further into the airway and convert this partial airway obstruction into complete airway obstruction.<sup>1,3</sup> Spontaneous ventilation remains the preferred method when a foreign body is at the level of the glottis and cricoid ring.<sup>1,3</sup>

A glottic or subglottic location for a foreign body is often associated with complete airway obstruction in the prehospital and emergency department setting. The majority of children who survive the initial aspiration of nuts or seeds usually require bronchoscopy for a foreign body lodged in a tracheal or bronchial location. In these children, as the literature and Baum's letter suggest, neuromuscular blockade and positive pressure ventilation is an option that offers the benefit of a “quiet” airway. The use of neuromuscular blockade facilitates the bronchoscopic removal and prevents the coughing and breath-holding that frequently accompany rigid bronchoscopy, particularly when foreign bodies are distal to the carina.<sup>1</sup> The glottic location is less common in the child who presents to the operating room for foreign body removal, and we believe the image reinforces the wisdom of maintaining spontaneous ventilation during anesthesia induction.

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## Is Simulation the Best Way to Assess Pediatric Anesthesia Skills?

*To the Editor:*

We would like to commend Fehr *et al.* for their article that addresses simulation-based assessment for pediatric anesthesia skills.<sup>1</sup> We agree that a multiple scenario-based education and assessment of skills required to manage a pediatric anesthesia crisis are helpful in educating anesthesia residents.

We have a few questions for the authors to clarify their study.

In the scoring system, did the authors give consideration to the sequence in which the trainees performed items on the checklist? We believe this is important. For example, in a bronchospasm scenario, we believe administering 100% oxygen at the beginning of the crisis is more important than having it done toward the end of the crisis management. Did timing of performance of an action by the trainee affect the score they received?

Having previous exposure to pediatric anesthesia simulation could improve the trainees' performance and their comfort level in the simulated setting.<sup>2</sup> Did the trainees have previous exposure to pediatric simulation before their 2-h session described in the study?

Some of the scenarios seem to have less discrimination between the trainees with less than 2 months or those with more than 2 months of pediatric training. These scenarios, *i.e.*, malignant hyperthermia, bronchospasm, and accidental extubation, are common to both the pediatric and adult anesthesia experience. Could this have a role in their lack of discrimination?

Interestingly, there is a lack of difference in performance between anesthesia fellows and residents. This could also mean that these scenarios would be less discriminating for pediatric anesthesia practitioners. Was there any feedback from the fellows and experienced residents that some of the tasks were not necessary for the management of the crisis scenarios? Such feedback could help tailor the items in the checklist on which future trainees would be scored while participating in these crisis management scenarios.

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### In Reply:

We appreciate the comments of Gurnaney *et al.* regarding the design and scoring of simulation scenarios. As Gurnaney *et al.* indicate, the sequence of actions is often important. The scoring checklist in this study did not incorporate a sequential approach for actions to be credited and did not involve the subtraction of points for actions that should not have been performed. Although a variety of scoring methods have been used and their reliability reported, we selected a check-

list scoring method in this study and reported the reliability of scores. The primary reason not to incorporate a sequential approach or a weighted scoring was to simplify the scoring mechanics. These are some of the challenges that have been described in scenario design and checklist creation.<sup>1</sup>

Regarding the potential bias introduced by prior exposure to simulation, the trainees in this program had extensive simulation experience during their training, but at the time of this study it had been limited to adult mannequins and task trainers. Their pediatric specific simulation experience was therefore limited.

As Gurnaney indicates, some of the scenarios, such as malignant hyperthermia and asthma, are common to adult practice. Experience garnered in the adult realm can certainly translate into pediatric practice. We agree this may explain why these scenarios were not effective at differentiating participants with more from those with less pediatric training experience. An important observation from this study is that some participants did not perform at the highest levels despite having greater clinical experience.<sup>2</sup> Even though some scenarios might not be as discriminating, the recognition and management of these conditions is considered essential to pediatric anesthesia practice and add to the catalog of scenarios that can be utilized to assess an individual's performance in a stressful but standardized situation. The feedback obtained from participants as well as the scenario discriminations are helpful in selecting and designing a set of pediatric scenarios that could be used in a multiple-scenario pediatric anesthesia assessment.

Simulation holds the promise of being a component of multi-modal assessment of the ability of residents and fellows at pediatric anesthesia skills, providing reproducible scenarios that do not put our most vulnerable patients at risk.

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## Cover Art Commentary for the ANESTHESIOLOGY March 2012 Issue

### To the Editor:

I was disheartened to see the March 2012 cover image of a single gray-haired female featured with the tagline "Ad-

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“dressing Competency and Education in the Aging Anesthesiologist.”

The majority of anesthesiologists has always been and continues to be male. The referenced study by Tessler *et al.* eliminated gender as a variable. There are no data to suggest female anesthesiologists differ from their male counterparts in quality of care.

Cover art for ANESTHESIOLOGY has been singularly outstanding in recent years, in creativity and clinical pertinence, particularly the molecular schematics. A more appropriate image to reflect this article and accompanying editorial would have been a similar image including a more diverse group of seasoned anesthesiologists (particularly male), or perhaps more of a schematic, less-realistic-looking group.

She could be any of us women, and we neither wish nor deserve to be the isolated standard bearer for this important topic.

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*In Reply:*

Thank you for writing concerning your response to the March 2012 cover art. You are not alone, and other women anesthesiologists have contacted me *via* email with a similar response. The cover art does not represent the population of practicing anesthesiologists and should not have singled out female physicians. I want to extend my apologies to you and others for my poor judgment in this choice of cover art.

**James C. Eisenach, M.D.**, Editor-in-Chief, ANESTHESIOLOGY, and Wake Forest School of Medicine, Winston-Salem, North Carolina. editor-in-chief@anesthesiology.org

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