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Reply to Engelhardt, Thomas; Schmidt, Alexander; Machotta, Andreas, regarding their comment 'Prevent the Need for Front of Neck Access'

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Authors: Stefano C Sabato^{1,2}, Elliot Long^{2,3,4}

Author affiliations:

1. Department of Anaesthesia and Pain Management, The Royal Children's Hospital Melbourne, Parkville, VIC, Australia.
2. Murdoch Children's Research Institute, Parkville, VIC, Australia.
3. Department of Emergency Medicine, The Royal Children's Hospital, Parkville, Victoria, Australia.
4. Department of Pediatrics, Faculty of Medicine, Dentistry, and Health Sciences, University of Melbourne, Victoria, Australia.

Corresponding author: Dr. Stefano Sabato. Department of Anaesthesia and Pain Management. The Royal Children's Hospital Melbourne, 52 Flemington Rd. Parkville, VIC 3052, Australia. stefan.sabato@rch.org.au

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We would like to thank Engelhardt et al for their letter in response to our educational review "An institutional approach to the management of the 'Can't Intubate, Can't Oxygenate' emergency in children".¹ Engelhardt et al reiterate important concerns that Front Of Neck Access (FONA) in children is a procedure associated with significant morbidity, that functional airway problems are the commonest cause of pediatric airway morbidity, and that FONA should not be considered a "safety net" for difficult airway management. For Can't intubate, Can't oxygenate (CICO) emergencies, they advocate airway rescue through the use of operator skill or the use of muscle relaxation in order to overcome anatomical or functional airway obstruction respectively. Furthermore, they suggest that airway training should not focus solely on the acquisition of FONA skills, but on other aspects of airway management.

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While it is true that most airway problems in children are functional in nature and will respond to muscle paralysis, this is not always the case. In patients with significantly abnormal airway anatomy or pathology, maintenance of spontaneous ventilation should be a priority until the airway is secured by endotracheal intubation. Thankfully, with good airway planning and an appropriate level of airway practitioner experience, the CICO emergency can be avoided, and is therefore extremely rare. However, CICO can still occur.

Every published airway algorithm has an endpoint where oxygenation through the front of the neck must be established if all other methods have failed.^{2,3} However, there is a lack of recommendations and consensus in the literature as to how, practically, to perform this procedure in children. The focus of our paper was to provide an approach to paediatric airway practitioners. It was beyond the scope of the review to focus on airway management in general, including prevention of the CICO emergency. These areas have been comprehensively addressed elsewhere.⁴ The Royal Children's Hospital Melbourne CICO Algorithm includes guidelines as to *when* a CICO emergency should be declared and FONA performed. FONA should be performed if all of the following criteria exist: the child is anaesthetised or unconscious with a GCS < 8, the airway practitioner is unable to intubate, the airway practitioner is unable to oxygenate/ventilate with either an oropharyngeal/supraglottic airway or two person ventilation technique, the oxygen saturation is < 80% (<50% with cyanotic heart disease) and is bradycardic, there is no reversible cause (e.g. laryngospasm), cricoid pressure has been removed, and the child cannot be woken up.

Airway training needs to be a balance between basic airway skills to address common problems such as laryngospasm and upper airway obstruction, advanced airway skills including flexible intubating bronchoscopy and videolaryngoscopy, and management of the extremely rare CICO emergency. Each institution must decide how much time to devote to developing an approach to CICO and training for it. Our review allows institutions to have an "off the shelf" approach and save time. Institutional preparation for CICO is not a "safety net", but a necessary part of hospital airway management. An unsuccessful FONA may still occur despite the procedure being performed at an appropriate time and by an appropriately skilled doctor. This is a fact that we must accept. However, the alternative, to let children die without attempting FONA in a true CICO emergency, seems untenable.

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Author/s:

Sabato, SC;Long, E

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