

Lost in transition: use of SpO₂ in the Australian and New Zealand College of Anaesthetists transition tool. Comment on *Br J Anaesth* 2020; 125: e38–46

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Editor—Chrimmes and colleagues¹ are to be congratulated for their article on transition emphasising the simultaneous attempts to avert and prime for an emergency front-of-neck airway (eFONA) in conjunction with technical and psychological factors. This should be mandatory reading for all airway providers. They quite rightly point out the connection between end-tidal carbon dioxide (ETCO₂) and alveolar oxygen delivery, along with the limitations of pulse oximetry blood saturation (SpO₂) for assessing alveolar oxygen delivery.

However, there needs to be some clarification about the inclusion of SpO₂ in the Australian and New Zealand College of Anaesthetists (ANZCA) transition to cannot intubate/cannot oxygenate (CICO) cognitive aid (Fig. 1).² By way of background, ANZCA produces evidence-based professional standards documents and publications that provide guidance, standards, and information for anaesthetists and other interested parties. These include works on the transition process² and ANZCA professional standards document 61, 'Guidelines for the management of evolving airway obstruction: transition to the can't intubate, can't oxygenate airway emergency'.³ I was chair of the Airway Management Working Group at the time of development of these resources, and here I provide some personal insights into why we included SpO₂.

There was much debate in the 2014 ANZCA Airway Management Working Group as to whether to include SpO₂. We believed that if all three supraglottic rescue approaches (bag-mask ventilation, supraglottic airway, and tracheal intubation) have been unsuccessful and transition has occurred in a simultaneous stepwise manner (call for help, prepare for eFONA, and declare CICO) as each supraglottic rescue approach fails, then eFONA should be performed. The transition to the CICO cognitive aid (Fig. 1) reflects this.

The conundrums were the failure to recognise the need for eFONA because of a variety of reasons, including fixation errors and loss of situational awareness, and whether there should be a hard objective reading to focus on. This was primarily to alert the primary airway provider to the fact that a rapid escalation in CICO status was required. It was not about insisting a desaturation should occur before declaring a CICO situation.

The ANZCA professional standards document 61³ states, 'If not already evident, a fall in oxygenation is imminent when criteria for failed supraglottic rescue in the three pathways are met. Thus, irrespective of oxygen saturation,

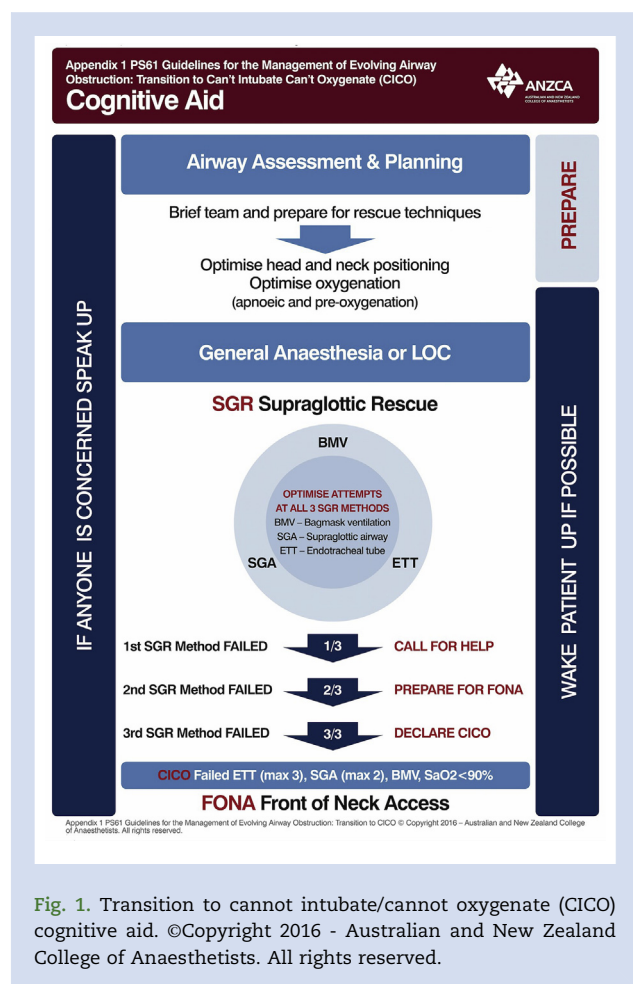


Fig. 1. Transition to cannot intubate/cannot oxygenate (CICO) cognitive aid. ©Copyright 2016 - Australian and New Zealand College of Anaesthetists. All rights reserved.

clinicians should strongly consider calling for help after one pathway has been attempted unsuccessfully and should declare intent and mobilise resources for infraglottic rescue when two pathways are substantially unsuccessful. Concern should be upgraded if at any point oxygen saturation falls below 90%. Similarly, SpO₂ is included in the Vortex Approach CICO status tool (fig 3 in Chrimmes and colleagues¹) for the same reason of emphasising that additional escalation is required.

The second consideration in including SpO₂ was that it is useful for the second airway provider, who may have just arrived to help, to know that there is still tissue perfusion. This will dictate how best to proceed especially if the other airway providers' experiences are unknown.

Most anaesthetists have been in situations where we may have had to take over airway management of a patient or have had airway management taken over in the emergency department or operating theatre. The subsequent management once help has arrived is usually successful in rescuing the situation. There are psychological reasons and technical reasons why the rescue airway provider may be a game changer providing situational awareness is maintained. When I am called to help, I have already decided that I am ready to perform eFONA. I assess the information given by the primary airway provider, and observe the environment and monitors, including SpO₂ and ETCO₂, to determine how to proceed. If the primary airway provider has tried all three supraglottic approaches and there is no wake-up option, I have one intubation attempt with a videolaryngoscope. If that is unsuccessful, then generally my plan is to progress to a video-assisted fiberoptic intubation if the SpO₂ is >90% or to eFONA if SpO₂ is <90% with our prepared point-of-care kits.

Ultimately, the final consensus opinion of the 2014 ANZCA Airway Management Working Group was that SpO₂ should be included.

Declaration of interest

The author was chair of the Australian and New Zealand College of Anaesthetists Airway Management Working Group.

References

1. Chrimes N, Higgs A, Rehak A. Lost in transition: the challenges of getting airway clinicians to move from the upper airway to the neck during an airway crisis. *Br J Anaesth* 2020; 125: e38–46
2. Australian and New Zealand College of Anaesthetists. Transition from supraglottic to infraglottic rescue in the “can't intubate can't oxygenate” (CICO) scenario. Report from the ANZCA airway management working group 2014. Available from: https://libguides.anzca.edu.au/ld.php?content_id=48540794. [Accessed 1 August 2020]
3. Australian and New Zealand College of Anaesthetists. Guidelines for the management of evolving airway obstruction: transition to the can't intubate, can't oxygenate airway emergency. ANZCA PS61 2017. Available from: <https://www.anzca.edu.au/getattachment/71f54974-314a-4d96-bef2-c03f39c8a8e9/PS61-Guideline-for-the-management-of-evolving-airway-obstructiontransition-to-the-Can't-Intubate-Can't-Oxygenate-air-wayemergency#page=> [Accessed 1 August 2020].

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Risks and outcomes of gastrointestinal endoscopy with anaesthesia in patients with pulmonary hypertension

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Editor—Precapillary pulmonary hypertension (PH) is defined as a mean pulmonary artery pressure (mPAP) ≥ 25 mm Hg at rest coupled with a pulmonary capillary wedge pressure (PCWP) ≤ 15 mm Hg and an elevated pulmonary vascular resistance (PVR) >3 Wood units (WU).¹ A high risk of perioperative morbidity and mortality is observed after noncardiac and non-obstetric surgery. Retrospective studies including small samples have reported a complication rate of 6–42%,^{2–7} and a mortality rate up to 18%.³ Gastrointestinal (GI) endoscopy procedures are very commonly performed procedures and general anaesthesia or sedation is very often needed. However, no studies have evaluated the safety of GI endoscopy in patients with PH. The aim of our study was to

describe a cohort of patients with precapillary PH undergoing GI endoscopy requiring sedation or general anaesthesia and to report on complications and outcomes of these procedures.

This was a retrospective cohort study (with systematic sampling) of consecutive patients with precapillary PH undergoing GI endoscopy, between March 1, 2012 and November 30, 2017, at the French National Reference Centre for Pulmonary Hypertension (Paris-South University, Bicêtre University Hospital, Le Kremlin-Bicêtre, France). Multiple procedures in the same year for one patient were excluded. Skilled gastroenterologists (>10 yr of practice) performed all procedures. Anaesthetists assisted by nurse anaesthetists provided all sedation or anaesthesia procedures. Major complications were