

Standards for *Can't Intubate Can't Oxygenate (CICO)* education sessions

CONTEXT

The ANZCA CPD standard requires participants to complete two of the four activities from the Emergency Responses category during each CPD triennium.

The purpose of this document is to assist hospital departments, private practice groups and continuing medical education providers to develop and/or conduct these education sessions.

The education sessions are required to include a practical simulation component. Simulation in this context may mean bench top training in a local department, not necessarily fully immersive mannequin based simulation in a centre.

Hospital departments and private practice groups are encouraged to develop education sessions that satisfy local needs, incorporating local staff, work environment and equipment.

Assessment, planning and preparation are of paramount importance in managing the difficult airway, and are considered essential steps before embarking on an anaesthetic. These issues are beyond the scope of the CICO education session defined in this document, but practitioners are strongly encouraged to review them before attending.

BACKGROUND TO CICO ACTIVITY

CICO situations occur infrequently but as specialists, we must be prepared to deal with such a crisis if it arises. Coroners' cases have highlighted the need for regular, formal training in order to maintain familiarity with equipment and techniques. Numerous factors are recognised that pose challenges to anaesthetists in this situation, including:

- Uncertainty as to when to declare a CICO situation;
- Unwillingness to desist with supraglottic approach to airway rescue (including endotracheal intubation) as the primary method for managing the obstructed airway;
- Lack of familiarity with surgical airway techniques;
- Inadequate access to appropriate equipment; and
- Underdeveloped skills in leading a team in this crisis.

Anaesthetists should be able to recognise when this situation has arisen, declare it as a 'CICO situation' and commit to airway interventions delivered via the anterior surface of the neck (i.e. infraglottic) aimed at bypassing the obstruction to deliver oxygen. Anaesthetists should have a methodical approach to supraglottic airway management to ensure all reasonable efforts are made to maintain or restore oxygenation and to avoid infraglottic rescue if possible. Equally they should understand that persistent attempts at supraglottic rescue without concomitant infraglottic rescue interventions increase a patient's risk of death or serious hypoxia related morbidity.

Knowledge of emergency algorithms, recognition of CICO, familiarity with equipment and rehearsal of emergency procedures are essential components of training. *Ideally this training occurs within a team, and in the specialist's regular working environment.*

DEFINITIONS AND TERMS

No universally agreed definitions exist for much of the nomenclature around CICO. For the purposes of clarifying terms that are used within this document, the following definitions are provided. Alternative definitions may be used in CICO workshops, however providers should demonstrate that these have equivalent meaning.

Can't Intubate Can't Oxygenate (CICO)

Where airway obstruction exists in the upper airway (including the larynx) that cannot be relieved by airway management interventions delivered above the point of obstruction (ie: supraglottic), and which results in an inability to oxygenate the patient with low or falling oxygen saturations.

Infraglottic airway access / Front-of-neck access

Airway management techniques performed below the larynx via the anterior surface of the neck aimed to maintain or restore airway patency. This includes techniques such as needle or surgical cricothyroidotomy or tracheostomy.

Clinical Lead

- The medical officer nominated by each department/group to oversee the provision of the CICO education sessions conducted by that provider.
- Does not necessarily need to attend the session in person.
- Needs to be at level of Consultant, and appropriately skilled and experienced to oversee the development of the session content. Ideally the clinical lead will have medical education experience and/or credentials.
- May assume the role of lead facilitator for a particular session.

Lead Facilitator

- The doctor who oversees the conduct of a CICO education session.
- Needs to be at a level of ATY2 or higher, and be appropriately skilled and experienced to deliver the content of the session.
- Ideally the lead-facilitator will have medical education experience and/or credentials.

Instructor

- A doctor with relevant anaesthesia skills and experience who conducts the individual “hands-on” skills stations/scenario rehearsals with guidance from the lead facilitator.
- Ideally the instructors will have medical education experience and/or credentials.

RECOGNISED EMERGENCY ALGORITHMS

At this stage, ANZCA does not exclusively endorse any one emergency algorithm for CICO situations but recognises the need for clinicians to be familiar with at least one. The following background resources and (accompanying) algorithms are suitable for use in infraglottic airway access/ front-of neck access:

- ANZCA Airway Management Working Group. Transition from supraglottic to infraglottic rescue in the “can’t intubate can’t oxygenate” (CICO) scenario [Internet]. 2014. From: <http://www.anzca.edu.au/documents/report-from-the-anzca-airway-management-working-gr.pdf>. Accessed March 4 2019.

Within this document the following algorithms can be found:

- [Figure 1: American Society of Anesthesiologists \(ASA\) Difficult Airway Algorithm \(page 51\)](#)
- [Figure 2: Difficult Airway Society \(DAS\) – Overview \(page 52\)](#)
- [Figure 3: Canadian Airway Group Difficult Airway Algorithm \(page 53\)](#)
- [Figure 4: Dr Andrew Heard’s algorithm for percutaneous emergency oxygenation \(page 53\)](#)
- [Figure 5: Vortex™ Model \(page 54\)](#)
- [Figure 6: CriCon2 \(page 54\)](#)
- [Figure 7 & 8: Rural Health Continuing Education Critically Obstructed Airway Course Working Group \(page 55\)](#)
- [Appendix 1: ANZCA Cognitive Aid and User Guide for Transition to CICO \(page 58\)](#)
- Australian and New Zealand College of Anaesthetists. PS61 Guidelines for the Management of Evolving Airway Obstruction: Transition to the Can’t Intubate Can’t Oxygenate Airway Emergency: Background Paper [Internet]. 2017. From: <http://www.anzca.edu.au/documents/ps61bp-2017>. Accessed August 20 2018.
- Australian and New Zealand College of Anaesthetists. PS61 Guidelines for the Management of Evolving Airway Obstruction: Transition to the Can’t Intubate Can’t Oxygenate Airway Emergency [Internet]. 2017. From: <http://www.anzca.edu.au/documents/ps61-2017>. Accessed August 20 2018.
- Chrimes N, Fritz P. The vortex approach: management of the unanticipated difficult airway [Internet]. 2013. Smashwords Edition [Internet]. From: https://rollcagemedic.com/resources/Archived_newsletters/the-vortex-approach-management-of-the-unanticipated-difficult-airway.pdf. Accessed August 20 2018.
- Sabato SC, Long E. An institutional approach to the management of the 'Can't Intubate, Can't Oxygenate' emergency in children. Paediatr Anaesth 2016;26(8):784-793. [Internet]. From: <http://onlinelibrary.wiley.com.ezproxy.anzca.edu.au/doi/epdf/10.1111/pan.12926>. Accessed August 20 2018.
- Heard A. Percutaneous Emergency Oxygenation Strategies in the ‘Can’t Intubate, Can’t Oxygenate’ Scenario. Smashworks Editions, 2013. [Ebook]
- Greenland KB, Acott C, Segal R, Goulding G, Riley RH, Merry AF. Emergency surgical airway in life-threatening acute airway emergencies - why are we so reluctant to do it? Anaesth Intensive Care 2011;39(4):578-584. [Internet]. From: <http://aaic.net.au.ezproxy.anzca.edu.au/PMID/21823373>. Accessed August 20 2018.

Providers of any courses (including ‘instructor’ courses) must present the chosen algorithm in a manner that accurately reflects the algorithm as published, as per the expected standards of any scholarly activity.

LEARNING OBJECTIVES

As a minimum, education sessions must provide the opportunity for participants to meet the learning objectives listed below. Objectives marked with an asterisk (*) require participants to actively engage in hands-on activities to practice this skill during the session, and have the opportunity to demonstrate how to lead an emergency response for CICO.

By the end of the education session, participants will be able to:

1. Apply criteria to recognise when a CICO situation has arisen.
2. Communicate clearly to others that a CICO situation exists*.
3. Explain the steps and decision-making points in one of the recognised difficult airway algorithm that addresses CICO (refer to list of recognised algorithms above).
4. Be fluent with equipment and procedures relevant to the preferred emergency algorithm.
5. Direct/team-lead an emergency response for CICO including the following steps*:
 - a. Clearly explain supraglottic airway rescue strategies (technical expertise is assumed)
 - b. Transition to CICO
 - i. Anticipate and mobilise resources for imminent infraglottic airway access/ front-of-neck access
 - ii. Recognise and declare CICO (As per definition of CICO above)
 - c. Infraglottic airway access/front-of-neck access
 - i. Implement the chosen emergency algorithm
 - ii. Continue supraglottic airway rescue
6. Recognise that non-technical and teamwork skills, as well as initiation of management protocols, are vital to the management of a CICO situation

OPTIONAL

Education session providers may elect to expand the focus of teaching to include additional objectives if it is deemed that this would facilitate more effective teaching for the particular target audience. Suggestions for consideration include:

- Recognise the non-technical and teamwork competencies that have a positive impact in evolving CICO crises, and employ strategies to utilise them
- Discuss the role of cognitive aids in the management of CICO situations
- Recognise the role of human centred design as it relates to emergency equipment and hospital systems
- Recognise the relationship of CICO to anaesthesia related mortality, and the major risk factors for CICO.

STRUCTURE OF THE EDUCATION SESSION

The education session is required to:

1. Provide pre-course reading that refers to the selected CICO algorithm used in the session and provides relevant foundation knowledge of the session content.
2. Be deliverable as a continuous session or in parts
3. Have a minimum total duration of ninety (90) minutes and provide hand-on activities, which include scenario-based rehearsal to achieve objectives marked with an asterisk (*). A minimum of eighty (80) minutes of practise is recommended.
4. Be conducted by a lead facilitator and provide at least one instructor per four participants. Facilitators need to observe each participant while they are working through scenarios and provide verbal feedback to ensure they are achieving the objectives of the session.
5. Utilise the following equipment:
 - models of the neck allowing practice of infraglottic airway placement;
 - oxygen for oxygen delivery for infraglottic airway access / front-of-neck access; and
 - equipment relevant to preferred emergency algorithms
6. Course directors who wish to record information relating to the performance or conduct of participants must obtain written consent and adhere to the privacy policies of their organisation and location. ANZCA does not collect this information and it is optional for the course provider and director to do so.

SESSION MATERIALS

Session materials, in hard copy or electronic form, need to include the following:

- Session objectives
- Session outline
- Facilitators' guide (including equipment list, scenario outlines)
- CICO algorithms as handouts
- Session evaluation forms for feedback from participants
- Participant list containing the date, venue, names and appointment types of participants.