

## Emergency Airway Management: Learning and Training

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### Abbreviations

CPR: Cardiopulmonary Resuscitation; AM: Airway Management; CICO: Can't Intubate Can't Oxygenate; DA: Difficult Airway; BVM: Bag-Valve-Mask Device; ALS: Advanced Life Support Course; ATLS: Advanced Trauma Life Support course

Emergency airway management is a common challenge for physicians working in-hospital emergency rooms and out-of-hospital emergency teams.

There are many pathologies and clinical situations that may lead the patient to require airway instrumentalization to receive any type of artificial respiratory support [1]: 64.3% by CPR, 10,0% by trauma, 7.6% by intracranial pathology.

The goldstandard in the management and isolation of the airway has been and is currently tracheal intubation with a rigid tube protected with pneumo-seal, which ensures a volume-minute programmed into the respirator and prevents pulmonary aspiration of gastric or other contents. secretions or bleedings.

It is known that the airway management (AM) is all the more complex while the more unfavorable is the environment in which the patient is. In fact, there are publications that relate the progression to the "Can't Intubate and Can't Oxigenate" (CICO) scenario significantly more in the outpatient setting compared to the surgical area [2] (2220/20,000 vs. 1.5/20,000).

The Difficult Airway (DA) is defined as that situation in which an experienced doctor has difficulty during tracheal intubation, for ventilation with supraglottic device, for ventilation with bag-valve-mask (BVM), or for any of them.

In addition, the DA could be classified:

- Anatomically Difficult: Low mouth opening, Mallampati > 3, Cormack > 2.
- Physiological Difficult or by the current pathology: Facial trauma, impossibility of cervical mobilization due to the need for restriction of spinal movements, thoracic trauma, severe hemodynamic instability or deep hypoxemia.
- Contaminated Airway: Presence of foreign body, drowned patients, digestive or pulmonary hemorrhages.
- Psychological DA: Situations in which the operator is subjected to high stress or emotional component (pediatric population for a non-pediatric doctor, hostile environment).
- DA conditioned for the Environment: Out-of-hospital environment, lack of technical resources, poorly trained assistant staff.

Based on this background, the emergency physicians should have advanced training and in-depth knowledge about the comprehensive management of the airway, as well as a periodic refreshment in these techniques.

The reality is not usually so, being the training in airway management relegated tangentially to workshops or short-lived skill stations integrated into other courses or training programs (ALS, ATLS...).

Recently, a British study [3] showed how in-hospital emergency responders who defined themselves as competent and autonomous in the airway management turned out not to be able to adequately ventilate a healthy anesthetized patient through BVM: only 31% managed to perform adequate manual ventilation.

Likewise, a Scandinavian publication [1] revealed how the number of interventions on the airway performed by an out-of-hospital emergency physician per year is much lower than recommended to maintain an adequate level of competence: 9 intubations/year, when it is usually recommended about 50/year to consider that these skills and abilities are maintained.

On the other hand, training in critical procedures using only low-fidelity simulation elements (conventional mannequins) is of lower quality and its impact on the student is significantly lower than teaching based on the use of cadaver [4].

In view of the above and the experience accumulated in years of teaching and work in the field of airway management, I consider it is highly recommended that emergency physicians initially receive a deep and specialized training in advanced airway management, given by highly qualified personnel and if possible through the use of CadaverLab or similar techniques, with short but periodic sessions of updating and recycling in critical procedures in a specific way, avoiding training only at the expense of other generic courses and taught by personnel that is not always really expert in airway management.

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