Emergency airway management – by whom and how?

S. J. M. Sollid[1,2,3], J. Mellin-Olsen[4] and T. Wisborg[5,6,7]

[1]Department of Health Studies, Faculty of Social Sciences, University of Stavanger, Stavanger, Norway
[2]Air Ambulance Department, Oslo University Hospital, Oslo, Norway
[3]Department of Research and Development, Norwegian Air Ambulance Foundation, Drøbak, Norway
[4]Department of Anaesthesiology, Intensive Care and Emergency Medicine, Bærum Hospital, Sandvika, Norway
[5]Anaesthesia and Critical Care Research Group, Faculty of Health Sciences, University of Tromsø, Tromsø, Norway
[6]Hammerfest Hospital, Department of Anaesthesiology and Intensive Care, Finnmark Health Trust, Hammerfest, Norway
[7]Norwegian National Advisory Unit on Trauma, Division of Emergencies and Critical Care, Oslo University Hospital, Oslo, Norway

Correspondence
T. Wisborg, Hammerfest Hospital, Department of Anaesthesiology and Intensive Care, Finnmark Health Trust, N-9613 Hammerfest, Norway
E-mail: torben@wisborg.net

Conflicts of interest
None

doi: 10.1111/aas.12759

Procedures for advanced airway management are important for maintaining basic life functions in the unconscious patient, and can be lifesaving in critically ill or injured patients. In Acta Anaesthesiologica Scandinavica, a working group from the Scandinavian Society of Anaesthesiology and Intensive Care Medicine (SSAI) presents updated clinical guidelines on pre-hospital airway management.[1] The recommendations from the working group are important statements in the long-lasting quest to ensure that advanced airway management is managed safely pre-hospital at the right level of competence.

Technically, many of the procedures for advanced airway management of the average patient in controlled situations are easy to learn. Yet, a German study found that at least 200 intubation attempts were required to reach a 95% success rate.[2] The challenge, however, lies in assessing and managing the difficult airway cases. Emergency physicians with anaesthesiology background seem to be better at predicting difficult intubations than emergency physicians with other backgrounds, in addition to having significantly lower incidence of intubation problems and more experience in decisions on whether to intubate.[3]

Data from the UK show that the majority of complications in airway management occur in the emergency department and the intensive care unit. One of the reasons is the relatively low exposure to such procedures in these settings.[4] Studies on pre-hospital airway management also indicate that the rate of complications in this setting is high, and also that it is greatly dependent on the competence of the provider.[5] There is sufficient evidence to support that pre-hospital advanced airway management in the hands of trained anaesthesiologists is a safe procedure.[6–8] However, as other authors have pointed out, being a proficient provider of airway management is not equivalent with being an anaesthesiologist.[9] The combination of competencies to assess the situation, practical skills and ability to manage complications are more important than the name of the provider's speciality. In a physician-staffed helicopter emergency medical service in the UK, where doctors are a mix of anaesthesiologists and emergency physicians, the success rates are still high and complications are low.[10] This is probably related to the strict training and highly standardised operating procedures that all doctors must adhere to.

Based on this, advanced airway management seems to be safe if the providers have a large volume of clinical experience (anaesthesiologists) or alternatively, operate under strict

Acta Anaesthesiologica Scandinavica
AN INTERNATIONAL JOURNAL OF ANAESTHESIOLOGY AND INTENSIVE CARE, PAIN AND EMERGENCY MEDICINE
SAI

clinical guidance and protocol rule (non-anaesthesiologists). Intuitively, a combination of both could probably improve safety further and would be useful in clinical environments, and particularly when airway management occurs as unplanned events with little or no time for individual planning and screening of the patient.

The most recent consensus-based European Guidelines for Postgraduate Training in Anaesthesiology recommend the change from duration of training and number of procedures into competence-based training.[11] These competences include advanced airway management skills. Some of this training can be done in simulation settings, but simulation cannot replace real-life situations.[12,13] Once learnt, competences must be maintained. That requires regular exposure to the procedure. As the use of laryngeal masks and regional blocks increases at the expense of anaesthesia procedures including endotracheal intubation, the training opportunities for all providers, including anaesthesia personnel is being reduced. That is one of the reasons why the Section and Board of Anaesthesiology of the European Union of Medical Specialists recommended a multispecialty approach to emergency medicine.[14] Like the Scandinavian Society of Anaesthesiology and Intensive Care recommended in 2010,[15] the European Society of Anaesthesiology is increasingly using the term 'Critical Emergency Medicine' for the part of the anaesthesiology speciality that all anaesthesiologists should command.

A Nordic working group published a literature review in 2008 on pre-hospital airway management, and proposed an evidence-based guideline.[16] This position paper concludes unanimously that pre-hospital emergency airway management in the appropriate patient groups should be achieved by rapid sequence induction and endotracheal intubation, provided the physician is an anaesthesiologist. Other providers should treat the same patient group in the lateral trauma recovery position and if necessary, provide assisted bag-valve-mask ventilation. Supraglottic airway devices were recommended for non-anaesthesiologists in cardiac arrest with a need for supine positioning of the patient, and as a backup device for anaesthesiologists. These findings have been reaffirmed in the new SSAI clinical practice guideline published in August issue.[1]

A similar paper concerning Scandinavian clinical practice guidelines on general anaesthesia for emergency situations underlines the dangers associated with administering anaesthesia outside the operating theatre. They too advocate that anaesthesia for emergency patients should be given by, or under very close supervision by, experienced anaesthesiologists, and stress that problems with the airway are to be anticipated.[17]

Emergency airway management outside the operating theatres carries a high risk of difficult intubation, in a recent study 10.3%, and these patients have a high risk of complications.[18] This demonstrate the need for particular vigilance in and training for these settings, and provides another argument for using supraglottic approaches for those patients in the hands of non-anaesthesiologists. A recent report from the Johns Hopkins Hospital describes a successful attempt to mitigate difficult airway situations arising within this highly specialised hospital. By the formation of a difficult airway response team, the researchers conquered difficult airway situations which until the intervention ranked among the top five adverse events in Maryland.[19]

In conclusion, emergency airway management carries a high risk of patient injury, even among highly trained and skilled anaesthesiologists. Airway management can be learned, and emergency airway handling can be performed with maintained safety also by non-anaesthesiologists, provided they operate in a highly supervised and algorithm-based environment.[9] In this light, the emerging new emergency medical specialty in the Scandinavian countries is of concern, if these acute or emergency physicians are supposed to perform emergency airway procedures independent of their anaesthesiologist colleagues. Whoever manages the compromised airway in the pre-hospital setting is required to do so with the highest level of quality, attainable through a combination of clinical experience and clinical governance. It is difficult to see how this can be achieved and maintained outside the specialty of anaesthesiology. In the end, this is a matter of patient safety, not competition for airways.

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