



## Purpose

This procedure provides guidance to GSA-HEMS physician/paramedic teams conducting prehospital emergency general anaesthesia

Define the indications for prehospital emergency anaesthesia.

Describe the essential elements for safe prehospital emergency anaesthesia.

This procedure should be read in conjunction with the GSA-HEMS Prehospital Emergency Anaesthesia Manual

## Procedure

Prehospital Emergency Anaesthesia

## For Review

Jan 2017

### 1. Scope

#### 3.1 Clinical crew

### 2. Process

#### 2.1. Indications for Prehospital Anaesthesia

- 2.1.1. Failure of airway patency
- 2.1.2. Failure of airway protection
- 2.1.3. Failure of ventilation or oxygenation
- 2.1.4. Anticipated clinical course
- 2.1.5. Humanitarian reasons

#### 2.2. Preparation for RSI

- 2.2.1. Scene safety issues must be addressed by the medical crew prior to considering emergency anaesthesia.
- 2.2.2. A risk versus benefit analysis considering the relevant medical, environmental and personnel factors must be undertaken prior to every anaesthetic.
- 2.2.3. Establish adequate access to the patient. Where possible 360 degrees of access should be obtained. This may require repositioning of the patient



prior to induction. Do not attempt intubation in confined or cramped conditions unless there is no alternative.

- 2.2.4. Monitoring is to be established including a minimum of pulse oximetry, continuous waveform (or quantitative) capnography, ECG and BP prior to commencing induction. These must be documented on the mission case sheet and in the clinical database for all patients. See the College of Intensive Care Medicine Policy Document "IC-10: Minimum Standards for Transport of Critically Ill Patients -2010", section 6.
- 2.2.5. Standard pre-oxygenation utilises the adult or paediatric BVM with PEEP valve set to 5cm H<sub>2</sub>O tightly applied to the patient's face together with nasal prongs running at 4L/min to provide apnoeic oxygenation .
- 2.2.6. If ventilatory effort or oxygenation is inadequate (SaO<sub>2</sub> <98%) then assisted ventilation should be provided with the BVM
- 2.2.7. Nasal prongs oxygen flow rate should be increased to 15L/min immediately post induction.
- 2.2.8. If C-spine precautions are necessary, as in the case of traumatically injured patients, then the patient should have cervical in-line immobilisation in-place with the cervical collar open during laryngoscopy.
- 2.2.9. A small folded towel or SAM splint placed under the occiput should be used to correct any hyperextension of the cervical spine in the supine patient.
- 2.2.10. If C-spine precautions are **not** indicated then the patient should be positioned in the "ear-to-sternal notch position" with the external auditory meatus in the same horizontal plane as the sternal notch and the patient's face parallel to the ground or ceiling.

## 5. Pre-anaesthetic Sedation

- 5.1. In agitated patients, sedation may be necessary to facilitate pre-oxygenation. Doses should be carefully titrated to effect, particularly in patients who are obviously hypo-volaemic or hypotensive.
- 5.2. In trauma patients with severe pain, analgesia may be required while setting up for induction. Analgesia must be carefully titrated to effect, particularly in patients who are hypovolaemic or hypotensive. Ketamine in titrated boluses of 10-20mg provides excellent analgesia and sedation whilst maintaining respirations and airway tone.

## 6. Performing Emergency Anaesthesia

- 6.1 **The first attempt at intubation must be optimised.**
- 6.2 The tracheal bougie should be used routinely to facilitate successful first attempt at intubation.



- 6.3 If there are indicators of a potentially difficult airway or effective pre-oxygenation ( $\text{SaO}_2 > 98\%$ ) is **not** possible then the physician should perform laryngoscopy.
- 6.4 The doctor and paramedic must brief the procedure with all participating personnel prior to commencing induction. They must assign specific roles to those assisting and check understanding of procedures and drugs. Ensure all personnel are ready prior to commencing.
- 6.5 **The Emergency Anaesthesia Pre-Intubation Checklist should be used for all emergency anaesthetics immediately prior to induction.**
- 6.6 Ketamine (1.5-2mg/kg) is the preferred drug for induction of pre-hospital anaesthesia in conjunction with suxamethonium (1.5mg/kg) or rocuronium (1.5mg/kg) for muscle relaxation. A dose reduction of ketamine should be made for patients with significant hypovolaemia. Thiopentone (2-4mg/kg) is an alternative for hypertensive patients.
- 6.7 After drug administration and intubation of the trachea the position of the tracheal tube must be confirmed by continuous capnography and clinical checks (direct vision of the tube through cords, rise and fall of chest with ventilation and auscultation in both axillae and over the stomach).
- 6.8 Where glottic visualisation is sub-optimal then proceed to 30 second drills to improve view.
- 6.9 **30 second drills :**
- Release cricoid (if applied) and apply ELM (bi-manual laryngoscopy)
  - Change operator position
  - Change patient position (small pad under the occiput to bring neck into neutral position)
  - Use better suction where secretions or blood block the view
  - The laryngoscope can be inserted deeply and slowly withdrawn until identifiable anatomy is seen
  - Consider changing laryngoscope blade size or type
  - Consider changing operator

## 7. Failed Intubation

- 7.1. The algorithm for failed intubation must be understood and frequently rehearsed. Return to BVM and consider insertion of LMA, surgical airway or waking the patient. For patients requiring ventilation and transport, a surgical airway must be primarily considered.



- 7.2. The surgical airway kit must be readily available whenever performing pre-hospital emergency anaesthesia.

## 8. Currency

- 8.1 All staff must maintain clinical currency in Emergency Anaesthesia procedure consisting of on-line and practical components . Paramedics who are not current MAY NOT perform laryngoscopy on-scene.

## 9. Responsible Personnel

- 9.1. Senior Retrieval Consultants, Director of Medical Training, Medical Manager.

## 10. References

- 10.1 Section 6 of the Joint Faculty of Intensive Care Policy Document "IC-10: Minimum Standards for Transport of Critically Ill Patients - 2003".



## RSI Algorithm

