



NSW AEROMEDICAL &
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HELICOPTER OPERATING PROCEDURE

Prehospital Rapid Sequence Induction	HOP No: C/02	Issued: May 2012
	Page: 1 of 5	Revision No: 2
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1. Introduction

- 1.1. Rapid Sequence Induction (RSI) is a fundamental procedure in the care of critically unwell patients in the pre-hospital environment. This HOP has been developed as a guideline for helicopter and road-based medical crews and should be read in conjunction with the GSA-HEMS Prehospital RSI Manual.

2. Objectives

- 2.1. Define the indications for prehospital anaesthesia.
2.2. Describe the essential elements for prehospital rapid sequence induction.

3. Scope

- 3.1 Clinical crew

4. Process

4.1. Indications for Prehospital Anaesthesia

- 4.1.1. Failure of airway patency
4.1.2. Failure of airway protection
4.1.3. Failure of ventilation or oxygenation
4.1.4. Anticipated clinical course
4.1.5. Humanitarian reasons

4.2. Preparation for RSI

- 4.2.1. Scene safety issues must be addressed by the medical crew prior to considering RSI.
4.2.2. A risk versus benefit analysis considering the relevant medical, environmental and personnel factors must be undertaken prior to every RSI.
4.2.3. 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 RSI in confined or cramped conditions unless there is no alternative.



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- 4.2.4. Monitoring is to be established including a minimum of pulse oximetry, waveform (or quantitative) capnography, ECG and BP prior to commencing RSI. These must be documented on the mission case sheet 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.
- 4.2.5. Pre-oxygenation may be undertaken successfully in most patients with a tightly applied non-rebreathing oxygen mask and high flow oxygen provided there is adequate spontaneous ventilatory effort. If ventilatory effort or oxygenation is inadequate (SaO₂ <98%) then pre-oxygenation with a self-inflating bag (bag-valve mask) should be performed.
- 4.2.6. Nasal Prongs placed 1 min prior to induction, running at 15L/min should be considered in all patients as an adjunct to pre-oxygenation and to deliver apnoeic diffusion oxygenation during laryngoscopy.
- 4.2.7. If C-spine precautions are necessary, as in the case of traumatically injured patients, then the patient should have cervical in-line immobilization in-place with the cervical collar open during laryngoscopy.
- 4.2.8. 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.
- 4.2.9. 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-RSI Sedation

- 5.1. In agitated patients, small amounts of 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 generally maintaining respirations and airway tone.

6. Performing RSI

- 6.1 **The first attempt at intubation must be optimised.**
- 6.2 The tracheal tube introducer (intubating 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 (SaO₂ >98%) is **not** possible then the physician should perform laryngoscopy.



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- 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 RSI challenge –response checklist should be used for all RSIs 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 (1.2mg/kg) for muscle relaxation. A dose reduction should be made for patients with significant hyovolaemia. 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 RSI.
8. **Paediatrics**
- 8.1 Pre-hospital anaesthesia for paediatric patients is only rarely required. The indications for RSI must be carefully considered and discussed by the medical crew on scene prior to commencing. If direct communication is available and time allows, the medical team should confirm the indication for RSI with the Senior Retrieval Consultant prior to proceeding.



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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".

11. Review date

20 April 2009



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RSI Algorithm

