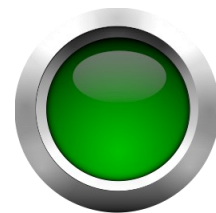


# Post intubation & ventilation SOP

QPI

Further reading

AAGBI Safer prehospital anaesthesia 2017  
AAGBI Interhospital transfer 2009  
Prehospital anaesthesia handbook 2016



## Related SOPs

Prehospital emergency anaesthesia SOP   Paediatric PHEA SOP   Traumatic brain injury SOP

**Intubation and ventilation marks the start of advanced respiratory support/level 3 critical care. It brings with it a requirement for increased vigilance in order to detect and prevent clinical deterioration.**

## Monitoring

Monitoring should ideally be performed on our own monitoring device from the earliest opportunity. If an alternative monitor has to be used, GNAAS crew must be familiar with its functions and obtain a summary printout for our own records. Minimum standards as per the Association of Anaesthetists guidelines apply, from prior to intubation until handover in hospital:

- ECG and heart rate
- SpO<sub>2</sub>
- NIBP (every 3 mins)
- EtCO<sub>2</sub>

## Airway

- After confirmation of correct placement, note the length of the ETT at the lips and secure
- Take care to avoid excessive cuff pressures - use just enough to abolish a leak
- Keep one hand on the ETT at all times during trolley/stretchers transfers
- Where spinal injury is a concern, maintain spinal motion restriction techniques at all times



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## Breathing and ventilation strategies


- Use of an HME filter is mandatory as it prevents contamination of equipment and also keeps respiratory gases humidified.
- Manual ventilation by hand after intubation is labour intensive and fails to provide consistent pressures or minute volumes. Invasive mechanical ventilation using the GNAAS Medumat Standard<sup>2</sup> ventilator should be commenced at the earliest opportunity.
- For simplicity, IPPV mode is recommended initially with tidal volumes of 6-8mls/kg (ideal body weight), although this may vary in certain disease states. Once mechanical ventilation is established, take the time to fine tune the settings for tidal volume, FiO<sub>2</sub>, PEEP and the alarm limits prior to transit:
  - i. The minute volume should be adjusted to achieve a **target EtCO<sub>2</sub> of 4-4.5KPa** in most situations. Occasionally, in patients with severe asthma or lung injury (and where brain injury is not a concern), a permissive hypercapnia strategy is appropriate using lower volumes/pressures.
  - ii. FiO<sub>2</sub> will initially be 100% oxygen until the tube position is confirmed. Where oxygen saturations remain high, the ventilator should be routinely switched to trial air mix (FiO<sub>2</sub> approx. 60%). **Target saturations are 94-99%**. In certain situations such as carbon monoxide poisoning or severe decompression illness, the FiO<sub>2</sub> should remain 100%.
  - iii. **PEEP of 5mbar** should be considered routinely, but may be avoided if there are concerns about significant hypovolaemia or post cardiac arrest as it can worsen venous return. Higher levels (10-15mbar) are an option in hypoxic severe lung injury, but this must be balanced against the impact on cardiac output.
  - iv. **I:E ratios default to 1:1.7** and should generally be left alone, but where necessary can be altered to account for disease states such as severe bronchospasm (1:3).
  - v. **Ventilator alarms are a vital safety mechanism. Do not ignore them.** If alarms are frequently triggering but the clinician is satisfied with the settings, there is a real risk of 'alarm fatigue' and desensitization. Alarm limits should be changed to reflect the acceptable parameters for the specific settings and patient.



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## Circulation

Intravenous cannulae are at risk of dislodgement during patient movements and during transfer to hospital. They should be well secured, with additional tape if necessary. Blood transfusion/fluid therapy should be managed in accordance with the relevant SOP.

-  Hypotension that is thought to be due to anaesthetic drugs rather than hypovolaemia can be managed with 6mg boluses of ephedrine.

## Disability/drugs

Delivery of adequate doses of sedation and neuromuscular blocking drugs are core components of general anaesthesia. Sedation should be either with morphine, midazolam, or with further ketamine.

-  Rocuronium at 1.2mg/kg will generally last for 60 minutes so additional doses may be required for prolonged cases. Refer to the prehospital emergency anaesthesia SOP for further details.

## Environment

Anaesthetised patients are vulnerable to iatrogenic injury. Whilst in our care, careful thought must be given to packaging, padding of pressure areas/bony prominences, temperature management, eye care and ear protection.