



Guidance on the provision of anaesthesia services for Intra-operative Care

When considering the provision of anaesthesia, the Royal College of Anaesthetists recommends that the following areas should be addressed. The goal is to ensure a comprehensive, quality service dedicated to the care of patients and to the education and professional development of staff. The provision of adequate funding to provide the services described should be considered.

Summary

- An appropriately trained and experienced anaesthetist must be present throughout the conduct of all general and regional anaesthetics and procedures requiring sedation given by an anaesthetist;¹ this is the main determinant of the safety of patients during anaesthesia.²
- An anaesthetic assistant who is trained, competent and holds an appropriate nationally recognised qualification must be present throughout the entire anaesthetic procedure, and provide exclusive assistance to the anaesthetist.³
- All anaesthetic equipment must be checked before use according to the Association of Anaesthetists of Great Britain and Ireland (AAGBI) published guidelines.⁴
- The recommended standards of monitoring must be met for every patient.¹
- Within each theatre suite there must be at least one portable storage unit with specialised equipment for management of the difficult airway.⁵
- Policies and equipment must be in place to protect patients and staff from cross-infection.⁶
- Fully resourced, dedicated daytime emergency and trauma lists should be provided.⁷
- If appropriate resources are not available the level of clinical activity should be limited to ensure a safe provision of intra-operative care.⁸

Introduction: The importance of intra-operative anaesthetic care

- General anaesthesia is a state of induced, reversible loss of consciousness, during which the patient will be unaware of their surroundings and of painful stimuli.
- Regional and local anaesthesia are states in which parts of the body are rendered insensible to painful stimuli. These states may be accompanied by sedation which alters the patient's level of consciousness.
- The effects of anaesthesia and of the surgical procedure may have profound physiological consequences for the patient, and require monitoring and if needed correction throughout anaesthesia.
- The continuous presence of an appropriately trained and experienced anaesthetist is essential as the main determinant of patient safety during anaesthesia.²
- Monitors with appropriately set alarms may detect critical incidents and provide an early warning of the consequences of an error.
- The safe provision of anaesthesia requires the help of competent anaesthetic assistance at all times.
- Anaesthetic equipment is subject to frequent, repetitive use and needs regular servicing according to manufacturer's specification to prevent malfunction.

- Careful and regular in-service checks of anaesthetic equipment and of drugs minimise the risks posed by anaesthesia.
- The anaesthetic record is an important medical document, which should contain the relevant physiological measurements and relevant observations during every anaesthetic.

Levels of provision of service

1 Staffing requirements

- 1.1 All anaesthetists and anaesthetic assistants, including locum and agency staff, must undergo a proper induction process.⁹
- 1.2 An appropriately trained and experienced anaesthetist must be present throughout the conduct of all general and regional anaesthetics and procedures requiring sedation by an anaesthetist.¹
- 1.3 Under the present system of healthcare provision in the UK, one anaesthetist cannot provide direct care for more than one patient receiving general or regional anaesthesia, or sedation.
- 1.4 As soon as the care of the patient is transferred to the anaesthetist, an anaesthesia assistant who is trained, competent and holds an appropriate national qualification must provide exclusive assistance to the anaesthetist.²
- 1.5 The anaesthetic assistant must be immediately available throughout the entire anaesthetic procedure.²

2 Equipment, support services and facilities

Equipment

General

- 2.1 Facilities for monitoring, ventilation of patients' lungs and resuscitation including defibrillation must be available at all sites where patients are anaesthetised.
- 2.2 The following ancillary anaesthetic equipment must also be available at all sites where patients are anaesthetised:
 - oxygen supply
 - facemasks
 - suction
 - airways (e.g. 'Guedel')
 - laryngoscopes
 - tracheal tubes and connectors
 - intubation aids (e.g. bougies, forceps etc)
 - laryngeal mask airways

- heat-moisture exchange filters
- self-inflating bag
- trolley/bed/operating table that can be rapidly tilted head-down.

- 2.3 In each theatre suite there must be at least one portable storage unit with specialised equipment for management of the difficult airway.⁴ In addition, a fibre-optic laryngoscope should be readily available.
- 2.4 User manuals should be available as needed for anaesthetic equipment.
- 2.5 All anaesthetic equipment must be checked before use according to the AAGBI published guidelines.⁴ Anaesthetic machine checks should be recorded in a logbook or on the anaesthetic chart.
- 2.6 No anaesthetic machines should be able to supply a hypoxic gas mixture.^{10,11}
- 2.7 All anaesthetists and anaesthetic assistants should receive systematic training in the use of new equipment.⁴
- 2.8 A named consultant should oversee the provision of anaesthetic equipment.¹²
- 2.9 There must be a planned maintenance and replacement programme for all anaesthetic equipment.¹²
- 2.10 Appropriate equipment must be available to minimise heat loss by the patient and to provide active warming.¹³
- 2.11 Additional specialised equipment is needed for babies and young children.

Monitoring

- 2.12 The recommended standards of monitoring, instrumental or otherwise, must be met for every patient.¹
- 2.13 The following equipment must be available to monitor the anaesthetic machine:
 - oxygen analyser
 - device to display airway pressure whenever positive pressure ventilation is used, with alarms that warn if the pressure is too high or too low
 - vapour analyser whenever a volatile anaesthetic agent is in use
 - capnograph.
- 2.14 The following equipment must be available to monitor the patient:
 - pulse oximeter
 - non-invasive blood pressure monitor
 - electrocardiograph

- capnograph
- a means of measuring the patient's temperature
- a nerve stimulator when a muscle relaxant is used.

2.15 Some patients will require additional monitoring equipment, such as invasive pressure which should be readily available, and cardiac output monitors to which there should be access.¹

2.16 All monitors should be fitted with audible alarms.

Support services

2.17 Local standards and guidelines for patient care should be developed, building on those published nationally.

2.18 Guidelines for the management of rare emergencies, such as malignant hyperthermia, anaphylaxis and peri-arrest arrhythmias, must be displayed prominently.⁸

2.19 Policies and equipment must be in place to protect patients and staff from cross-infection, including the safe disposal of sharps.⁵

2.20 Anaesthetic sites must have scavenging systems that meet the [Health & Safety Executive's](#) occupational exposure standards for anaesthetic agents.¹⁴

2.21 All anaesthetic records must contain the relevant portion of the recommended anaesthetic data set for every anaesthetic¹⁵ and be kept as a permanent document in the patient's case notes.

2.22 Services must be available for:

- haematology
- blood transfusion
- chemical pathology, including blood gas analysis
- chest radiology
- electrocardiography.

2.23 There should be policies in place for the safe and rational use of blood and blood products.^{16–20}

Facilities

2.24 The anaesthetic room and operating theatre must conform to Department of Health building standards.²¹

2.25 There must be policies and facilities in place to protect patients and staff who are hypersensitive to latex-containing products.²²

2.26 A system must be in place to allow the presence of parents or carers at induction of anaesthesia in

children.²³

3 Training and education

3.1 See Chapter 1: Key points on the provision of anaesthesia services, for further details of education and training requirements in anaesthesia services.

4 Research and audit

4.1 There should be a multidisciplinary programme for auditing intra-operative care.

4.2 There should be a system in place to allow reporting and regular audit of critical incidents and near-misses.⁹

4.3 Systematic audit should include the pattern of work in operating theatres.⁷

5 Organisation and administration

5.1 If appropriate resources are not available, the level of clinical activity should be limited to ensure a safe provision of intra-operative care.⁸

5.2 Fully resourced, dedicated daytime emergency and trauma lists should be provided.⁷

5.3 Up-to-date, clear and complete information about operating lists must be available. Any changes must be agreed by all relevant parties, to ensure that the correct operation is performed on (the correct side of) the correct patient.²⁴

5.4 There must be a policy and procedure in place to confirm the patient's identity, the planned procedure and the side and site of surgery, before induction of anaesthesia.⁸

6 Patient information

6.1 Information to patients should include what to expect in the anaesthetic room and operating theatre.²⁵

6.2 Patients from non-English speaking groups may need interpreters.

6.3 Patients with learning and other difficulties may need special assistance and consideration.

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