PS55(A)Position statement on minimum facilities for safe administration of anaesthesia in operating suites and other anaesthetising locations 2021

Short title: Minimum safe facilities

1. Purpose

This position statement outlines the minimum requirements to be provided by healthcare facilities for safe administration of anaesthesia. It is intended to assist facilities when designing, upgrading, equipping and staffing clinical areas where anaesthesia is delivered. It is recognised that there is an increasingly diverse range of facilities and contexts where anaesthesia is provided, each with its own specific requirements. This document specifies the minimum staffing, equipment, emergency medications and service processes in all locations where anaesthesia is provided.

2. Scope

This position statement is intended to apply to operating theatre suites.

It is also intended to apply to any other areas where anaesthesia services may be provided, including standalone facilities and facilities undertaking 'deep sedation', where medications are administered that result in loss of verbal contact with the patient.[1]

It is not intended to apply to intensive care or emergency departments.

Anaesthesia includes general anaesthesia, neuraxial or major regional analgesia as defined in *PG03(A) Guideline for the management of major regional analgesia*, and sedation as defined in *PG09(G) Guideline on sedation and/or analgesia for diagnostic and interventional medical, dental or surgical procedures*.

3. Background

Anaesthesia spans the perioperative period, and it is essential that all aspects of management involved in each phase relevant to the healthcare facility can be safely provided. It is expected that healthcare facilities providing anaesthesia services meet the minimum requirements contained within this Position Statement and engage the services of qualified medical practitioners' credentialled in accordance with ANZCA *PS02(A) Position statement on credentialling and defining the scope of clinical practice in anaesthesia*.

4. Staffing

Whenever anaesthesia is being administered there should be a dedicated assistant for the anaesthetist in accordance with ANZCA professional document *PS08(A) Position statement on the assistant for the anaesthetist*.

There should be sufficient assistance immediately available for the duration of the procedure for positioning the patient in accordance with the occupational health and safety regulations of the facility. As a minimum this should be three, although more may be required depending on the physical characteristics of the patient, staff, and patient transfer device.

Trained and qualified technical assistants to ensure proper functioning and servicing of all relevant equipment should be available.

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[1] Refer to Document Framework Policy Glossary section for a full description of deep sedation.

5. Physical location

5.1 Pre-anaesthesia consultation.

ANZCA *PG07(A) Guideline on pre-anaesthesia consultation and patient preparation* outlines the facilities required to fulfil this task.

5.2 Post-anaesthesia care unit – post-anaesthesia recovery.

ANZCA *PS04(A) Position statement on the post-anaesthesia care unit* outlines the design, equipment, and staffing required to deliver safe patient care.

5.3 Anaesthetising locations.

It is a requirement that all facilities comply with regulatory and licensing standards as well as occupational health and safety regulations including:

- Lighting and emergency lighting
- Electric power supply with backup
- Patient transfer devices to assist with safe transfer of patients from the procedural table to the recovery trolley, and then safe transport to the recovery area (refer ANZCA *PS04(A) Position statement on the post-anaesthesia care unit*).

Other requirements include:

- Availability of telecommunications permitting communication with persons outside the anaesthetising location. Ideally, there should also be mobile phone reception and internet access
- Presence of an anaesthesia emergency call system
- Heating/cooling sufficient to maintain theatre temperature at a specified temperature within the range 18-28^{o}C
- Equipment to ensure safe positioning of patients during procedures
- Secure but accessible storage for restricted medications according to jurisdictional requirements

5.4 Evacuation

Contingency plans should exist for the safe and timely emergency evacuation of patients from the operating suite and/or recovery areas under medical supervision.

6. Equipment

6.1 Essential anaesthesia equipment

Monitoring of physiological and other variables should comply with ANZCA professional document *PG18(A) Guideline on monitoring during anaesthesia*. The availability of equipment for invasive monitoring will be determined by patient complexity in addition to surgical or procedural complexity and may even be required for straightforward procedures.

The equipment listed below is regarded as essential, however, the specific requirements should be tailored to the types of procedures and patients in the facility.

Each facility should designate at least one credentialled specialist anaesthetist to advise on the choice and maintenance of anaesthesia equipment and at least one of its nursing or technical staff to be responsible for organising, maintaining, and servicing anaesthesia equipment.

Personal protective equipment and theatre clothing appropriate for both the designated procedure and for the patient population undergoing care, must be provided for all personnel. This includes protection from biological hazards such as contaminated body fluids, equipment to

reduce the risk of healthcare related infections[2] (see *PG28(A) Guideline on infection control in anaesthesia*) as well as equipment to reduce exposure to physical hazards such as laser eye protection and ear protection where needed.

It is highly recommended that laminated copies of cognitive aids and flowcharts be available and accessible in each location. These should include management of can't intubate can't oxygenate (CICO), anaphylaxis, cardiac arrest, systemic local anaesthetic toxicity and malignant hyperthermia emergencies.

Basic airway equipment related to the types of patients and procedures include:

- Facemasks
- Airway adjuncts (oropharyngeal and nasopharyngeal airways)
- At least two laryngoscopes
- A range of tracheal tubes
- Supraglottic airways
- Connectors, bougies/introducers and associated equipment suitable for the size and age of patients to be anaesthetised
- Magill's forceps
- Throat packs,
- Syringes for inflation of tracheal tube and supraglottic airway cuffs and sterile lubricant for airway devices
- High flow airway equipment to provide support during shared airway and deep sedation procedures

As a minimum, the following should also be available:

- Additional advanced airway equipment should also be provided in a separate difficult airway trolley as outlined in *PG56(A) Guideline on equipment to manage difficult airways* including a pre-prepared kit for performance of an emergency front of neck airway procedure in case of a can't intubate, can't oxygenate crisis.
- A separate means of inflating the lungs with oxygen that complies with the current relevant national standard and is independent of the anaesthesia delivery system. The size of any device and its attachments will be determined by patients being anaesthetised at any given location.
- Suction apparatus that complies with the current relevant standard for the exclusive use of the anaesthetist at all times together with hand pieces and endotracheal suction catheters. There should be provision for an alternative suction system in the event of primary suction failure.
- Equipment for intravenous cannulation (tourniquets, skin preparation and cannulae) including means for safe disposal of sharps and minimisation of infection as outlined in *PG28(A) Guideline on infection control in anaesthesia*. Adhesive tapes and scissors should be provided to secure intravascular and airway devices.
- A stethoscope and manual sphygmomanometer
- Monitoring equipment as identified in ANZCA professional document *PG18(A) Guideline on monitoring during anaesthesia*.
- A cardiac defibrillator with capacity for synchronised cardioversion. In larger centres or centres with patients with complex co-morbidities there should be provision for transcutaneous pacing.
- Equipment for sub-arachnoid, epidural or regional nerve blocks, where required.

6.2 Context-specific anaesthesia equipment

[2] Refer to ANZCA statement on personal protection equipment (PPE)

In addition to these basic requirements, additional provisions should be made for areas where specific types of surgery or anaesthesia are performed.

6.2.1 Where volatile anaesthesia is delivered, or non-depolarising muscle relaxants used the following are essential:

- An anaesthesia delivery system or anaesthesia machine with a gas scavenging system that complies with *PS54(A) Position statement on the minimum safety requirements for anaesthesia machines and workstations for clinical practice*.
- Breathing systems including paediatric breathing systems if paediatric patients are to be anaesthetised.
- Equipment for automatic ventilation of the lungs, incorporating alarms as specified in ANZCA professional document *PG18(A) Guideline on monitoring during anaesthesia*.

6.2.2 Where anaesthesia is delivered by intravenous infusion the following are strongly recommended:

- Equipment for programmable delivery of medication by infusion, preferably loaded with applicable pharmacokinetic models.
- Depth of anaesthesia monitoring such as a processed electroencephalogram monitor if muscle relaxation is also employed.

6.2.3 Where complex surgery is undertaken such as cardiac, thoracic, major vascular neurosurgery or obstetrics the following are essential:

- Equipment for the direct measurement of arterial and venous pressures.
- Equipment for the rapid infusion of fluids such as manual pump giving sets and devices to heat and pressurise fluid.
- Interpleural drainage sets including underwater seal drainage equipment or one way valves in facilities where thoracic trauma or surgery is undertaken, or where there may be a risk of pneumothorax.
- Equipment for the active warming (and where appropriate, cooling) of patients such as insulating sheets, forced air warming devices, mattress warmers and intravenous fluid warmers.

7. Emergency medications

In addition to the medications and agents commonly used to manage anaesthesia, medications should also be available for the management of emergencies arising as a result of, or in associations with, anaesthesia. For a list of these conditions and the recommended list of medications refer to Appendix 1.

In addition, if volatile anaesthetics or suxamethonium are intended to be used, the possibility of malignant hyperthermia (MH) is present. A supply of Dantrolene appropriate to the clinical area must be stocked. Recommended levels for stock are outlined in Appendix 2. MHANZ and AAGBI recommend dantrolene administration continue until end-tidal carbon dioxide is < 45 mmHg and core temperature is <38.5^{o}C. In this setting capnography and core temperature monitoring availability is critical[3].

8. Related ANZCA documents

PS02(A) Position statement on credentialling and defining the scope of clinical practice in anaesthesia

[3] AAGBI guidelines Malignant hyperthermia 2020.
https://anaesthetists.org/Portals/0/PDFs/Guidelines%20PDFs/Guideline%20Malignant%20hyperthermia%202020.pdf?ver=2021-01-13-144236-793

PS04(A) Position statement on the post-anaesthesia care unit

PG07(A) Guideline on pre-anaesthesia consultation and patient preparation

PS08(A) Position statement on the assistant for the anaesthetist

PG18(A) Guideline on monitoring during anaesthesia

PG28(A) Guideline on infection control in anaesthesia

PG31(A) Guideline on checking anaesthesia delivery systems

PS54(A) Position statement on the minimum safety requirements for anaesthesia machines and workstations for clinical practice

PG56(A) Guideline on equipment to manage difficult airways

This document is accompanied by a background paper (PS55(A)BP) which provides more detailed information regarding the rationale and interpretation of the position statement.

Professional documents of the Australian and New Zealand College of Anaesthetists (ANZCA) are intended to apply wherever anaesthesia is administered and perioperative medicine practised within Australia and New Zealand. It is the responsibility of each practitioner to have express regard to the particular circumstances of each case, and the application of these ANZCA documents in each case. It is recognised that there may be exceptional situations (for example, some emergencies) in which the interests of patients override the requirement for compliance with some or all of these ANZCA documents. Each document is prepared in the context of the entire body of the College's professional documents, and should be interpreted in this way.

ANZCA professional documents are reviewed from time to time, and it is the responsibility of each practitioner to ensure that he or she has obtained the current version which is available from the College website (www.anzca.edu.au). The professional documents have been prepared having regard to the information available at the time of their preparation, and practitioners should therefore take into account any information that may have been published or has become available subsequently.

Whilst ANZCA endeavours to ensure that its professional documents are as current as possible at the time of their preparation, it takes no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

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Appendix 1

Emergency medications

Some of the emergency conditions that may be encountered and therefore preparations should be made include adrenal dysfunction, anaphylaxis, bronchospasm, cardiac arrest, cardiac arrhythmias, coagulopathies, hyperkalaemia, hypoglycaemia, hypotension, hyperglycaemia, hypertension, malignant hyperpyrexia, major Haemorrhage, pulmonary oedema, raised intracranial pressure, respiratory depression, and uterine atony (where relevant).

A **minimum** requirement for basic emergency medication inventories "should include":

- Adrenaline/Epinephrine (1mg in 1ml) x3
- Adrenaline/Epinephrine (1mg in 10ml) x3
- Amiodarone (total of 450mg)
- Atropine (total of 3mg)
- Dantrolene (as per recommendation below)
- Dextrose 50%
- Ephedrine (30mg) x3
- Ergometrine (obstetrics)
- Esmolol
- Furosemide (total of 100mg)
- Glucagon (1mg/1iu)
- Glyceryl Trinitrate (total 50mg)
- Hydrocortisone (100mg) x2
- Insulin (short acting)
- Intralipid
- Magnesium (10mmol in 5 ml) x 2
- Metaraminol (10mg) x3
- Metoprolol IV (5mg) x2
- Naloxone (400mcg)
- Noradrenaline/Norepinephrine (total 3mg)
- Oxytocin (10iu) x5 (as required)
- Phenylephrine (as required)
- Prostaglandin F2a (as required)
- Salbutamol Metered Dose Inhaler
- Salbutamol iv
- Suxamethonium (100mg) x2
- Tranexamic Acid (1g) x2

Appendix 2

Malignant hyperthermia

It is an MHANZ recommendation that Dantrolene be stocked in any anaesthetising location using volatile anaesthesia, or where suxamethonium is planned to be used (other than for airway emergencies).

It is also recommended that an initial dose of at least 180mg of dantrolene be available to all locations within 5 minutes of an emergency. Subsequent doses of dantrolene should be available so that an additional 180mg is available every 15 minutes thereafter up to a total of 720mg doses. In other words, 180mg of dantrolene must be available within 5 minutes, 360mg available within 20 minutes, 540mg available within 35 minutes, and 720mg available within 50 minutes.

These doses are to be reliably available within the specified timeframes to any location at any time when anaesthesia is being delivered. Facilities should have a specific and accessible plan for obtaining further dantrolene if more than 720mg is required.