



## Short title: Minimum safe facilities BP

### 1. Introduction

Since 2021, the Background Paper to PS55 has had elements revised in 2024 (Appendix III – Non-airway burns/fires in the operating room) and in 2025 (Appendix II – Malignant Hyperthermia). It is recognised that the range of facilities in which provision of anaesthesia, including sedation, continues to expand and includes procedural sites as well as standalone “office-based” locations, each with their own specific needs.

The intention of the accompanying statement is to identify the minimum requirements to be met by facilities where anaesthesia services are delivered. In doing so, the aim is to provide guidance to anaesthesia providers and health facility management teams as to the basis of safe provision of anaesthetic care.

### 2. Background

Anaesthesia spans the entire perioperative period. Each aspect is of equal importance necessitating the provision of facilities permitting quality preoperative, intraoperative, and postoperative patient care.

For information on preoperative consultation facilities and post operative care units (PACU), readers are directed to *PG07 Guideline on pre-anaesthesia consultation and patient preparation* and *PS04(A) Position statement on the post-anaesthesia care unit* respectively. The main focus of PS55 is the requirements to be met, with particular attention to staffing, equipment, medications, and facilities, for safe administration of anaesthesia irrespective of the location in which it may be undertaken.

### 3. Discussion

3.1 Scope – there was discussion as to whether this statement should apply to anaesthetists only or whether it should include other anaesthesia providers and sedationists. The concern was that if it applies solely to anaesthetists then those facilities using non-specialists, such as GP anaesthetists may feel that they are not obliged to meet this standard of care. The review team was in unanimous agreement that these minimum facilities are applicable irrespective of the health professional providing anaesthesia or sedation.

The accompanying position statement specifically refers to deep sedation and anaesthesia thereby avoiding the complexities of jurisdictional differences in regulation/licensing of facilities that provide minimal/conscious sedation.

The wording in the first paragraph headed Purpose, is designed as a general statement to highlight that the accompanying document applies to all healthcare facilities in all locations where anaesthesia is provided, within the context of the range of services provided by them. It is well recognised that there are greater risks associated with non-operating room locations. These sites need careful risk assessment and planning, anticipating the potential problems and mitigating their effects. Factors such as the intended patient characteristics, surgical/procedures to be performed, environment, staffing, workflow, physical access and proximity to help during an emergency should all be considered in these locations.

The accompanying document is not intended to apply to intensive care units and emergency departments as they are areas of acute management with staffing and facilities adapted to their needs.

- 3.2 Staffing – *PS08(A) Position statement on the assistant for the anaesthetist* identifies the competencies expected of assistants to the anaesthetist as well as their availability.

There was a view that specifying a minimum number of staff to be present may be difficult as the number of staff will be dependent on the physical capabilities of staff, as well as patient factors (for example paediatric patients versus morbidly obese patients) and nature of devices used for transfer. These individuals should be immediately available when there are risks that the patient may need to be moved urgently such as during a cardiac arrest or other emergency.

The consensus was that if a minimum is not stipulated then there is a risk that there will be inadequate number to safely transfer patients and to safely manage anaesthesia and surgical or diagnostic procedure. Although many places recommend a minimum of 4 people for adults there is no provision for paediatrics. PS55 recommends a minimum of 3 people with anaesthetists having prime responsibility for patient airway, head and neck.

- 3.3 Anaesthetising locations – While it was noted that facilities are required to comply with regulatory and licensing standards with regard to power supplies and backup it was recognised that this did not extend to monitoring equipment.

During any power failure ventilators on anaesthesia machines continue to be operational, however, monitoring equipment may switch off. On resumption of power from backup or other sources it may take several minutes for the monitors to become operational again. It was felt that backup power to monitors should also be recommended. However, as this relates specifically to monitoring it was agreed that such a recommendation would be better situated in *PG18(A) Guideline on monitoring during anaesthesia*, and as such should be fed back to the Safety and Advocacy Unit for retention until PG18(A) is next reviewed.

It was recognised that some healthcare facilities employ only intravenous anaesthesia techniques. The consensus was that these facilities do not require a conventional anaesthesia machine so long as the available medication delivery systems and ventilators meet the minimum requirements. For clarity, in section 6.2.1 of the accompanying statement an “anaesthesia delivery system” may be either a system for intravenous medication delivery or for delivery of volatile anaesthesia. Intermittent boluses of hypnotic agents for short procedures do not require target controlled infusion devices. However, when total intravenous anaesthesia (TIVA) techniques are employed and in the presence of muscle relaxation, these are recommended. TIVA also carries a higher risk of awareness when associated with muscle relaxation and therefore it is recommended that a depth of anaesthesia monitor is also used when this technique is used.

- 3.4 Heating/cooling – it was raised that most theatre temperatures are within the range of 18-28°C without heating or cooling. Consequently, the reference to temperature needs to be more specific to reflect that heating/cooling needs to be sufficient to maintain theatre temperature at a specified temperature within the range of 18-28°C.

There was a suggestion that there should be a requirement for warming to be available for all except the most minor procedures. However, the interpretation of “most minor” may be quite varied. Furthermore, rapid turnover lists with patients fully clothed, such as dental and

ophthalmic procedures are not considered minor yet warming would derive little if any benefit. In addition, the potential waste has cost and environmental implications.

- 3.5 Essential anaesthesia equipment – monitoring recommendations are outlined in PG18(A). The need for invasive monitoring to be available is considered in terms of patient complexity as much as surgical complexity.

Similarly, the need for additional equipment as outlined in 6.2.2 in the accompanying statement will be determined by the complexity of the surgery as well as patient co-morbidities.

Protection against physical hazards has also been included in this revision to accommodate use of equipment such as lasers and loud noises.

Some of the equipment listed will apply only to specialised locations such as, for example, birth suites.

There was discussion around promoting the use of cognitive aids and flow charts for which there was strong support. The recommendation is that each anaesthetising location should have laminated copies of these aids in association with emergency drugs and equipment and readily available for the purposes of managing emergencies and also to assist with the checking of anaesthesia delivery systems as per *PG31(A) Guideline on checking anaesthesia delivery systems*.

- 3.6 There was considerable discussion regarding the range of emergency medications and specifically which medications should be included, and whether they should be listed or whether they should be categorised. Given that there is bound to be debate about the contents of any list, as well as the appearance or disappearance of some medications, the most pragmatic and flexible manner of addressing this is to develop an Appendix. This would have the benefit of providing some guidance to which readers can refer, but also as an appendix it can be updated without the necessity of the whole document undergoing a complete review.

The medications included in Appendix 1 are drawn from the range of ANZCA endorsed guidelines for common and life-threatening emergencies. Additional medications should be considered relating to the complexity of surgery and patients.

Malignant Hyperthermia (MH) – A common concern relates to cost of medications and shelf-life. This is particularly relevant to dantrolene in facilities where triggering agents for MH are not used. Malignant Hyperthermia Australia & New Zealand (MHANZ) were consulted and recommendations are based on both the MHANZ and European guidelines that are to apply where any triggering agents may be used. These guidelines were updated in 2020<sup>1</sup> and Appendix 2 provides specific considerations for the availability and considerations in relation to dantrolene reflecting these updates. The reason for MH and dantrolene being incorporated as an appendix is to offer flexibility in updating this section as required, without having to review the entire accompanying statement.

The timing for administration of initial dantrolene therapy has been specified to allow healthcare facilities to determine how to best meet these needs and to ensure that they can be achieved. Plans should therefore, allow for time required for communication, the fact that staff in the emergency location may be otherwise occupied, as well as the need to access locked or unfamiliar locations.

<sup>1</sup> Glahn et al. Availability of dantrolene for the management of malignant hyperthermia crises: European Malignant Hyperthermia Group guidelines. *Br J Anaesth.* 2020;125 (2):133-140.

It was determined that dantrolene did not need to be stored in healthcare facilities where intravenous anaesthesia was the sole means of general anaesthesia delivery and where suxamethonium was not used as there was no reasonable probability of triggering malignant hyperthermia (MH). Controversy exists as to whether facilities where suxamethonium is the only triggering agent available should stock dantrolene. One argument is that compelling such facilities to stock dantrolene may place patients at increased risk of harm if these facilities choose not to stock suxamethonium. It was therefore decided that if suxamethonium is *routinely* used (such as in ECT suites) dantrolene should be stocked, but this is not required if suxamethonium is reserved for emergency airway use only.

The question of the use of methoxyflurane analgesic inhalers (eg Pentrox) in pre-hospital and in-hospital care has been considered by the European Malignant Hyperthermia Group.<sup>2</sup> The avoidance of its use in known MH susceptible individuals is recommended. The lack of evidence for MH being triggered by the doses administered in the general population suggests that dantrolene is not required to be available in these circumstances. This advice will be updated should further evidence become available.

The total amount of dantrolene required was reconsidered in light of the 2020 recommendations and advice from MHANZ. The minimum dantrolene quantity locally available of 720mg stipulated is sufficient to provide 10mg/kg for a 72kg patient or close to the 7.5 mg/kg for a 100kg patient in the initial 30 minutes of management. It is recognised that many patients are more than 72kg and some patients are known to require more than 10mg/kg. Given the cost and storage implications, the lack of a clearly defined maximum dose, and the prevailing guidelines, it was decided to allow for a minimum of an additional 480mg mg to be reasonably available within 60 minutes. In environments where additional dantrolene is not accessible within 60 minutes of a potentially triggering anaesthetic being provided, the full likely treatment dose requirement (ie a minimum of 1200 mg) should be available on-site.

As multiple formulations of dantrolene are now stocked in Australian hospitals, doses in PS55 are specified in milligrams rather than ampoules.

#### **4. Summary**

PS55 was reviewed in the context of the increasing and varied locations in which anaesthesia services are provided, including sedation. The range of facilities providing such diagnostic and surgical procedures has expanded to include office-based locations to small stand-alone private facilities, through to tertiary public hospitals. Each has its own special requirements over and above any minimum.

It was also recognised that sedation providers range in training and skills, and that general anaesthesia may be provided by non-specialists. The recommendations in the accompanying statement identify the standard expected of the facilities where anaesthesia/sedation are managed, irrespective of the practitioner providing the service.

The previous revision of this document preceded PS55 requiring the development of an accompanying background paper. The development of this background paper satisfies that requirement.

<sup>2</sup> European Malignant Hyperthermia Group. Recommendations. Available from: <https://www.emhg.org/recommendations-1/2025/1/6/use-of-pentrox-methoxyflurane>

## **5. Document development group**

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## **6. Stakeholders consulted**

Regional Committees (Aus)

National Committee (NZ)

Australian Society of Anaesthetists (ASA)

New Zealand Society of Anaesthetists (NZSA)

Special Interest Groups (SIGs)

- Acute pain
- Airway management
- ACCUTE
- CTVP
- Day Care Anaesthesia
- Neuroanaesthesia
- Obstetric anaesthesia
- Perioperative medicine
- Regional anaesthesia
- Rural
- Trauma

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