

Short title: PACU BP

1. Introduction

PS04(A) Position statement on the post-anaesthesia care unit was last reviewed in 2006. The purpose of this revision was to broaden the scope to include post procedure recovery areas in all healthcare facilities where anaesthesia and sedation is provided. It also aims to provide guidance for safe patient management that aligns with the procedure performed, the anaesthesia or sedation technique, the patient profile including age and co-morbidities, the skills of nursing staff and the facility environment.

Regardless of whether patients are to be discharged to a ward or home, the function of the post anaesthesia care unit (PACU) or recovery area remains the same. It represents a place close to the procedure room where expert care is provided in the early postoperative period, at which time rapid changes in physiology and pathology may still be occurring. Recognition and management of these changes by trained and skilled staff is required until such time that a patient's physiological variables are stable, allowing transfer to the ward or discharge from the facility.

2. Background

Although the document was due for routine review, the review process was triggered by two concerns:

2.1 Airway management in the Post-Anaesthesia Care Unit (PACU)

The Safety and Quality Committee was approached by a senior member of the Australian college of Perioperative Nurses (ACORN) regarding concerns raised by PACU nurses pertaining to airway management in PACU. Reports were received regarding intubated patients being managed and extubated in PACU by nursing staff without the support of the primary anaesthetist or a delegated medical practitioner within their scope of practice and with the advanced airway skills. The 2006 version of PS04(A) made no specific recommendations about airway management and in particular no mandate that a practitioner with advanced airway skills should be available at the time of extubation. As the potential for airway compromise following extubation is well recognised, this updated version of PS04(A) addresses this issue.

2.2 Regulation of day procedures

Following a number of adverse outcomes, including death, in patients having cosmetic procedures in unlicensed facilities, a number of jurisdictions have sought to increase regulation of day stay procedures. Facilities providing medical or dental services for patients undergoing procedures under general anaesthesia, major regional anaesthesia, large dose local anaesthesia and, in some jurisdictions intravenous sedation, will be required to provide appropriately staffed and equipped recovery areas. The 2006 version of PS04(A) specifically detailed PACU requirements primarily for institutions managing inpatients. The revised document acknowledges the different requirements for recovering patients who are having more minor procedures on a day stay basis.

3. Discussion

In reviewing the accompanying guideline, the following issues were considered:

- 3.1 Title of the document.** The title was modified to reflect the more contemporary description of a recovery area. Although the term “post-anaesthesia care” is used, the intent is to include recovery from all forms of anaesthesia, including sedation and high-volume local anaesthesia as defined in the accompanying document. Classing the document as a “Position Statement” brings it into line with the current classification of professional documents, and is intended to identify the expected standards to support the recommendations.
- 3.2 Sedation.** Whilst the route of sedation is not specifically defined it is assumed that most sedative medications will be administered intravenously. However, it is recognised that delivery of sedative medications via other routes (e.g. oral, rectal, nasal) in doses that can result in significant impairment of consciousness, requires a period of observation by trained staff.
- 3.3 Airway management.** Patients are often transferred to PACU with an airway device in situ. This might include a Guedel airway, nasopharyngeal airway or supraglottic airway device such as a laryngeal mask airway (LMA). The PACU nurse should be specifically trained in airway management for these patients including removal of the airway device. An anaesthetist should be promptly available to assist if problems occur while the airway device is in place or when it is removed by a qualified member of the PACU staff. Although not specifically relating to PACU, it should not be assumed that High Dependency Unit (HDU) or Intensive Care Unit (ICU) areas are appropriately staffed (familiarity with supraglottic devices and nursing ratios) to delegate LMA management. It may be necessary for the anaesthetist to remain immediately available until the device is removed and the patient is stable.

An anaesthetist who takes a patient to recovery with an endotracheal tube in situ is responsible for the airway management of the patient until the patient has been extubated and airway and respiratory function determined to be adequate. The removal of the endotracheal tube is the responsibility of the anaesthetist or designated registered medical practitioner within their scope of practice and with advanced airway skills who should be immediately available during extubation.

The 4th National Audit Project of The Royal College of Anaesthetists in the United Kingdom focused on major complications of airway management¹. Twenty eight per cent of the reports pertained to airway complications at emergence or in the recovery period, airway obstruction was the cause of these and post-obstructive pulmonary oedema occurred in 10 per cent of cases of obstruction. Extubation is recognised as a high risk time period in patient management.

- 3.4 Mechanical ventilation in PACU.** It is recognised that in some institutions there may be a requirement to ventilate patients in PACU. This may be planned or unplanned and may occur with increasing frequency in the evolving model of perioperative care. It is essential that clinical staff are trained to manage intubated and ventilated patients. Monitoring should comply with *PG18(A) Guideline on monitoring during anaesthesia*. If volatile agents are used their end-tidal concentrations should be monitored and scavenging should be of a standard that is required for an operating theatre.

A formal HDU may be geographically located within the PACU. This will need to be staffed by trained and skilled medical and nursing practitioners.

- 3.5 Design features.**

Bed numbers. The 2006 document determined that there should be at least 1.5 spaces for each operating room. This may be inadequate for rapid turnover lists of short procedures and in facilities providing more complex procedures requiring extended PACU observation and management. However, this ratio may be unnecessary for facilities in which minor procedures are performed, particularly if patients routinely ambulate from the procedure room to second stage

recovery. As a result the revised document does not stipulate a recovery bay to procedure room ratio.

Bed space area. Recommendations on the area required for bed space vary from 9m² to 18m². PACUs managing patients having more than minor procedures need to have bays large enough to allow unobstructed access for clinical staff, resuscitation equipment, X-ray equipment and so on. A minimum of 9m² is required for PACU bays² unless a facility only provides care for patients having minor procedures performed under minimal sedation. Even in this circumstance adequate access should be provided for patient care including observations, airway access, resuscitation and so on. Larger bays of at least 20m² are recommended if patients may require ventilation, cardiac support or isolation. This recommendation reflects the requirement for ICU bed bays to be 20-25m².³

In general terms, the number, size and facilities in each recovery area should be fit for purpose for the number and type of procedure rooms which they serve.

3.6 Facilities providing paediatric care. It is essential that sufficient space and facilities are available to accommodate family members/carers of children in the PACU. This is required for the comfort of the child and in most cases will make caring for the child easier and safer. There should be seating available for at least one family member/carer whilst nursing the child. For care of babies this seating should be enable breast feeding and the area should provide privacy as requested by the family/carer.

3.7 PACU staffing. All PACU nurses should possess an understanding of, and be watchful for the signs and symptoms of complications arising from the specific surgical procedure, anaesthesia, or both.⁴ Recovery from anaesthesia is a potentially unstable period for patients due to an altered conscious state which may require interventions, particularly to support the respiratory and cardiovascular systems, as well as control of postoperative nausea and vomiting (PONV), and pain.

A registered nurse trained in perianaesthesia nursing should be in charge of the PACU.

In addition to meeting core competencies and educational requirements, it is essential that CPD for PACU nurses includes maintenance of Basic Life Support and Advanced Life Support accreditation along with Paediatric Life Support relevant to the ages of paediatric patients treated in that institution.

All patients should be observed on a one-to-one basis by an anaesthetist or registered PACU practitioner until they have regained control of their airway, have stable observations, and are awake and able to communicate purposefully.

Australian College of PeriAnaesthesia Nurses (ACPAN)⁵, ACORN⁶ and the Perioperative Nurses College/New Zealand Nurses Organisation⁷ make recommendations about nursing staffing requirements including training and qualification and nurse to patient ratios. These standards should be met.

3.8 Discharge criteria. Patients may be transferred to a high acuity area (ICU, HDU), to a ward, or discharged from the healthcare facility. The time spent in PACU varies and is determined by discharge criteria that include surgical, medical and anaesthesia factors. Inpatients will be transferred from first stage PACU to the ward after handover to ward nursing staff. Patients returning to their place of residence will usually pass through first stage followed by second stage recovery although patients undergoing minor procedures under minimal sedation may ambulate directly from the procedural area to second stage recovery. Critically ill patients will generally bypass PACU and go directly to an ICU.

Patients being discharged to the ward or their place of residence should generally meet the following criteria:

- return to pre-procedure conscious state.
- return of protective airway reflexes to pre-procedure levels.
- return of oxygen saturation to pre-procedure levels.
- cardiovascular stability. Heart rate and blood pressure approaching pre-operative values and within an acceptable physiological range for that patient. Parameters outside these values may be set by the anaesthetist or surgeon in accordance with goals of care.
- adequate pain control with a pain management plan. Patients prescribed opioids require regular assessment of the level of sedation.
- adequate control of nausea and vomiting with an anti-emetic regimen prescribed.
- temperature within acceptable limits.
- return or evidence of return of neurological function in case of major regional or neuraxial block. Patients who are to be discharged from the facility should have returned to a mobility level that is similar to pre-anaesthesia with allowance for type of surgery and/or regional anaesthesia technique.
- patients who are to be discharged from the facility and who are at significant risk of urinary retention (e.g. central neural blockade, pelvic or urologic surgery) should have passed urine.
- intravenous cannulae patent, flushed or removed as appropriate.
- tolerating oral fluids if discharge planned.
- surgical site and drains checked to ensure minimal bleeding or drainage.
- all health records complete including completed drug chart, post discharge instructions regarding medical management, monitoring and call criteria including Medical Emergency Team criteria.
- patients being discharged from the facility should be provided with appropriate discharge prescriptions, written and verbal instructions and contact details in accordance with *PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures*.
- follow-up of patients who are elderly or at increased risk of complications is encouraged.
- goals of care should be discussed between treating physicians and the patient or relatives as necessary.
- although rapid transit through recovery areas is seen to be the ideal in terms of operating suite flow, it is important that early or expedited discharge does not impact negatively on patient outcomes. The PACU provides a place of close responsive supervision by trained and skilled nursing staff with immediate access to medical care if required.

3.9 National Safety and Quality Health Service (NSQHS) Standards. A number of the “National Standards” have relevance to this document:

Standard 6, Communicating For Safety.⁸ Communication and documentation of essential information is crucial when there is a transition of care. Such clinical handover occurs between the anaesthetist or sedationist and PACU staff on entering the PACU, and between PACU staff and ward staff or carers at discharge. There also need to be effective systems and processes to support effective communication between different clinicians and between clinicians and family when critical information about a patient’s care emerges or changes. Correct patient identification is also within the scope of this standard and applies when administering therapies in recovery.

Standard 8, Recognising and Responding to Acute Deterioration⁹ Although this standard is designed principally for implementation in an environment in which there is not one-to-one care, the principle of ensuring systems are in place to ensure appropriate and timely response to physical or mental deterioration are also relevant to the PACU setting. Inpatient management after

PACU requires an appreciation of this standard as it will be applied to ward-based perioperative management.

4. Summary

PS04(A) Position statement on the post-anaesthesia care unit aims to provide guidance for the management of recovery of a broad spectrum of patients. These range from those having minor procedures in a standalone day care facility and who are to be discharged home, to patients undergoing major procedures in a tertiary hospital with the requirement for close monitoring for cardiovascular or respiratory instability in the immediate postoperative period. The document accordingly provides recommendations for staffing numbers and training as well as equipment and design and governance requirements.

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The document development group comprised:

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Related ANZCA documents

PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures

PG18(A) Guideline on monitoring during anaesthesia

PS53(A) Position statement on the handover responsibilities of the anaesthetist

References

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 - ACPAN Statement 2: Minimum Training Requirements for the Post-Anaesthesia Care Nurse. 2018, updated 2023. Available from: <https://t228.membes-ams.com/public/228/files/Statements/acpan-statement-2-2023-minimum-training-requirements-for-the-pacu-2023.pdf> Accessed 9 Apr 2024. Note: this updated reference has not yet been reviewed by ANZCA.
 - ACPAN Statement 4: Statement on Specialised Practice of Perianaesthesia Nurses: ACPAN Certification. 2019. *This reference has been superseded by: Statement on Certification for Perianaesthesia Nurses. 10 May 2022. Available from: <https://t228.membes-ams.com/public/228/files/Statements/acpan-statement-4-certification-for-perianaesthesia-nurses-10-may-2022.pdf> Accessed 9 Apr 2024. Note: this updated reference has not yet been reviewed by ANZCA.
 - ACPAN Statement 5: Statement on Supervision for Perianaesthesia Nurses. 2019. Available from: <https://t228.membes-ams.com/public/228/files/Statements/acpan-statement-5-statement-on-supervision-for-perianaesthesia-nurses-fn22112019.pdf> Accessed 9 Apr 2024.
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7. Perioperative Nurses College, New Zealand Nurses Organisation. Safe Staffing in the Perioperative Setting – Guidance Statement. Perioperative Nurses College, New Zealand Nurses Organisation; 2012. Available from: www.nzno.org.nz/Portals/0/Files/Documents/Groups/Perioperative%20Nurses/20120820%20Safe%20Staffing.pdf. Accessed 28 Feb 2024.
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Further reading

Association of Anaesthetists of Great Britain and Ireland. Immediate post-anaesthesia Recovery 2013. Anaesthesia. 2013 Mar;68(3): p.288-97. Available from: <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.12146> Accessed 28 Feb 2024.

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