



# **Guidelines on Postanaesthetic Recovery Care**

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## **1. INTRODUCTION**

1.1 A post-anaesthetic care unit (PACU) or an area which provides equivalent postanaesthesia care (for example, intensive care unit) should be available to receive patients after anaesthesia care.

1.2 A well-planned, well-equipped, well-staffed and well-managed PACU is essential for the safe early management of patients who have recently undergone a surgical or other procedure, irrespective of the type of anaesthesia or sedation used.

## **2. SCOPE**

2.1 All patients who receive anaesthesia care shall be admitted to a PACU or its equivalent except by specific order of the anaesthesiologist responsible for the patient's care.

2.2 These standards are intended for postanaesthesia care in all locations where anaesthesia is administered including obstetric, cardiology, radiological, dental and psychiatric units.

## **3. GENERAL PRINCIPLES**

3.1 Recovery from anaesthesia should take place under supervision in a PACU designated for the purpose.

3.2 This PACU should be close to where the anaesthesia was administered.

3.3 The anaesthesiologist is responsible for supervising the postanaesthetic recovery of patients until they can be safely discharged.

3.4 The staff working in this PACU must be trained for their role and able to contact supervising medical staff promptly when the need arises.

## **4. DESIGN FEATURES FOR THE POST-ANAESTHETIC CARE UNIT**

4.1 The PACU should be part of the operating or procedural suite with easy



access for management of emergencies by theatre staff. It should preferably also allow access from outside the suite. Provision should be made for rapid evacuation of patients from the PACU in an emergency (e.g. fire).

4.2 Ventilation and climate control of the PACU, where appropriate, should be of operating theatre standard.

4.3 Arrangement of bed/trolley in PACU:

4.3.1 Space allocated per bed/trolley should be at least 9 square metres (m<sup>2</sup>). According to the complexity and acuteness of cases performed in the location, a proportion of the PACU beds should PLAN TO have 20 square metres for the management of inadvertent events or short-term intensive monitoring.

4.3.2 There must be easy access to the head of the patient.

4.3.3 The number of bed/trolley spaces must be sufficient for expected peak loads and there should be at least 1.5 spaces available per operating room. The emerging international standard of 2 spaces per operating room is recommended for future designation of operating theatre.

4.3.4 The layout of bed spaces should allow staff to have an unobstructed view of several patients at once.

4.3.5 Each bed space must be provided with:

4.3.5.1 An oxygen supply outlet.

4.3.5.2 An medical air outlet.

4.3.5.3 Medical suction complying with relevant international standards.

4.3.5.4 At least 4 power outlets. However, with more electronic equipment used nowadays, members are to take notes of the 12 sockets recommended in AABGI in future renovation or construction plan of PACU. Use of electrical extension boards should be minimized for electrical safety.

4.3.5.5 Appropriate lighting and wall colour to allow accurate assessment of skin colour.

4.3.5.6 Physiological monitors with a display screen and recording system for patient data.



4.3.5.7 Appropriate facilities for mounting and operating any necessary equipment and for the patient's chart.

4.3.5.8 A push-button emergency call system.

4.4 Space must be provided for a nursing station, utility room and storage for drugs, equipment and clean linen.

4.5 There must be appropriate facilities for scrubbing up for procedures.

4.6 There should be a wall clock with a sweep second hand or analogue display clearly visible from each bed space.

4.7 There must be access to portable X-ray equipment with appropriate power outlets provided. X-ray viewing equipment must also be available.

4.8 An emergency electrical power and lighting must be provided in the area.

4.9 Communication facilities should include:

4.9.1 An emergency call system to areas where specialist staff are available and the system should be tested regularly.

4.9.2 At least two separate landline telephone with access to the hospital paging system.

## **5. PROVISIONS IN POST-ANAESTHETIC CARE UNIT**

5.1 Equipment and drugs

5.1.1 Each bed space should be provided with:

5.1.1.1 Oxygen flowmeter and connector.

5.1.1.2 Suction equipment including a receiver, appropriate rigid hand pieces and a range of suction catheters.

5.1.1.3 Pulse oximeter.

5.1.1.4 Facilities for blood pressure measurement including cuffs suitable for all patients.

5.1.1.5 Stethoscope.

5.1.1.6 A hand torch.



- 5.2 Within the Post-anaesthetic Care Unit there must be:
- 5.2.1 A range of devices for the administration of oxygen to spontaneously breathing patients.
  - 5.2.2 Means for manual ventilation with oxygen in a ratio of one unit per two bed spaces, but with a minimum of two such devices.
  - 5.2.3 Equipment and drugs for airway management and endotracheal intubation.
  - 5.2.4 Emergency and other drugs.
  - 5.2.5 A range of intravenous equipment and fluids and a means of warming those fluids.
  - 5.2.6 A range of syringes and needles.
  - 5.2.7 Patient warming devices.
  - 5.2.8 Electrocardiographic monitor.
  - 5.2.9 Devices for measuring expired carbon dioxide.
  - 5.2.10 Facilities for safe disposal of sharp objects.
  - 5.2.11 An adequate number of monitors to meet the anticipated case load.
- 5.3 There should be easy access to:
- 5.3.1 12 lead electrocardiograph.
  - 5.3.2 Defibrillator with appropriate paddles.
  - 5.3.3 Difficult airway equipment.
  - 5.3.4 Neuromuscular function monitor.
  - 5.3.5 Means of measuring body temperature.
  - 5.3.6 Blood warmers.
  - 5.3.7 Chest drains.
  - 5.3.8 Warming cupboard.
  - 5.3.9 Refrigerator for drugs and blood.
  - 5.3.10 Procedure light.



- 5.3.11 Basic surgical pack.
- 5.3.12 Blood gas and electrolyte measurement.
- 5.3.13 Diagnostic imaging services.
- 5.3.14 Apparatus with adjustable inspired oxygen concentration for mechanical ventilation of the lungs.
- 5.3.15 Monitors for direct arterial and venous pressure monitoring.
- 5.3.16 Central venous pressure sets.
- 5.3.17 Means of infusing intravenous fluids under pressure.
- 5.3.18 A bronchoscope with suction facility.
- 5.4 The recovery trolley/bed must:
  - 5.4.1 Have a firm base and mattress.
  - 5.4.2 Have an easily accessible tilt mechanism for both head up and head down to at least 15 degrees.
  - 5.4.3 Be easy to manoeuvre.
  - 5.4.4 Have efficient and accessible brakes.
  - 5.4.5 Provide for sitting the patient up.
  - 5.4.6 Have secure side rails which must be able to be dropped below the base or be easily removed.
  - 5.4.7 Have at least an I.V. pole.
  - 5.4.8 Have provision, when required, for mounting of monitoring equipment, apparatus for delivering oxygen, patient ventilation equipment, underwater seal drains and suction apparatus during transport of patients.

## **6. STAFFING**

- 6.1 Staff trained in the care of patients recovering from anaesthesia must be present at all times.
- 6.2 A registered nurse trained in post-anaesthetic care should be in charge.
- 6.3 Trainee nurses and registered nurses who are not experienced in the care of



patients recovering from anaesthesia must be supervised.

6.4 The ratio of registered nurses to patients needs to be flexible so as to provide no less than one nurse to three patients, and one nurse to each patient who has not recovered protective reflexes or consciousness.

6.5 Additional staff should be readily available in case of need.

## **7. MANAGEMENT AND SUPERVISION**

7.1 The hospital shall designate at least one specialist anaesthesiologist to advise on the PACU facilities and to review these facilities from time to time in the light of changes in circumstances, medical practice and technology.

7.2 Written protocols for safe patient management should be established. A specialist anaesthesiologist must be designated to be responsible for the medical aspects of these policies by the hospital.

7.3 A written routine for checking the equipment and drugs must be established.

7.4 When an anaesthetized patient is being transferred from one trolley/bed to another, a minimum of three people must assist with lifting. An anaesthesiologist must be present to have prime responsibility for the patient's head, neck and airway.

7.5 Patient should be monitored continually since on arrival to and until discharge from PACU and observations should be recorded at appropriate intervals and should include state of consciousness, colour, arterial oxygen saturation, respiratory rate, pulse rate, blood pressure and temperature. Any incident, for example, nausea and vomiting, pain control, drug administered and care processes carried out in PACU should be documented clearly.

7.6 All patients should remain in PACU until they are considered safe to be discharged.

7.7 The anaesthesiologist responsible for the patient should:

7.7.1 Accompany the patient until transfer to PACU staff is completed and patient is deemed safe to be left in the care of PACU staff.

7.7.2 Re-evaluate the patient's status upon arrival in the PACU and ensure it





to be documented.

7.7.3 Adequately hand over the care of the patient and provide written and verbal instructions to the PACU staff.

7.7.4 Specify the type of apparatus and the flow rate to be used for oxygen therapy.

7.7.5 Arrange any follow-up actions that the patient may require.

7.7.6 Supervise the post-anaesthetic period and authorize the patient's discharge from the PACU. It is recognized that in some circumstances it may be necessary for the anaesthesiologist previously responsible for the patient to delegate these duties to another anaesthesiologist or nurse trained in post-anaesthetic care. The clinical state of the patient should be fully informed during the handover.

7.8 The practitioner responsible for the patient's overall care should be available to consult with the anaesthesiologist in the post-anaesthetic period if necessary and authorize the discharge of the patient.

7.9 Minimum criteria for discharge of patients from postanaesthesia care unit to general ward:

7.9.1 The patient returns to pre-operative conscious state, able to maintain a clear airway and has protective airway reflexes.

7.9.2 Breathing and oxygenation is satisfactory

7.9.3 Stable cardiovascular system.

7.9.4 Adequately controlled pain and postoperative nausea and vomiting.

7.9.5 Temperature within acceptable limits.

7.9.6 Oxygen therapy should be prescribed if appropriate.

7.9.7 With patent intravenous cannulae and flushed to ensure removal of any residual anaesthetic drugs. Intravenous fluids should be prescribed if appropriate.

7.9.8 All surgical drains and catheters checked.

7.9.9 All health records completed and medical notes present, except in extraordinary situation, operation record may not be available.



## **8. REFERENCES**

Recommendations for the Post-anaesthesia Recovery Room. Australian and New Zealand College of Anaesthetists. Review PS4 (2006).

Standards for Postanesthesia Care. ASA House of Delegates (2014).

Immediate post-anaesthesia recovery 2013: Association of Anaesthetists of Great Britain and Ireland. March 2013.