



## **IMMEDIATE POSTANAESTHETIC RECOVERY**

Published by  
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**September 2002**

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## **Key recommendations**

1. After general, epidural or spinal anaesthesia, all patients should be recovered in a specially designated area which complies with the standards and recommendations described in this document.
2. The anaesthetist must formally hand over care of a patient to a recovery room nurse or other appropriately trained member of staff.
3. Agreed criteria for discharge of patients from the recovery room to the ward should be in place in all units.
4. An effective emergency call system must be in place in every recovery room.
5. No fewer than two staff should be present when there is a patient in the recovery room who does not fulfil the criteria for discharge to the ward.
6. All specialist recovery staff should be appropriately trained, ideally to a nationally recognised standard.
7. All patients must be observed on a one-to-one basis by an anaesthetist, recovery nurse or other appropriately trained member of staff until they have regained airway control and cardiovascular stability and are able to communicate.
8. The removal of tracheal tubes from patients in the recovery room is the responsibility of the anaesthetist.
9. There should be a specially designated area for the recovery of children.
10. All standards and recommendations described in this document should be applied to all recovery areas where anaesthesia is administered including obstetric, cardiology, X-ray, dental and psychiatric units and community hospitals.
11. Patient dignity and privacy should be considered at all times.
12. When critically ill patients are managed in the recovery room because of bed shortages, the primary responsibility for the patient lies with the critical care team. The standard of nursing and medical care should be equal to that within the critical care unit.
13. Audit and critical incident systems should be in place in all recovery rooms.

## Preface

In 1985, the Association of Anaesthetists of Great Britain and Ireland published recommendations for the improvement and management of recovery facilities in hospitals. These were updated in 1993. However, many changes in practice, workload, expectations and staff training have occurred in the last 9 years and the recommendations in this new document reflect these changes.

Every patient undergoing general anaesthesia or central neuraxial blockade should be recovered in a designated area as described in this document.

These recommendations are not concerned with those patients recovering from sedation. Guidelines with respect to this have been published recently [1].

## 1. The Recovery Room Facility

As the number and complexity of surgical procedures have increased, immediate postoperative care has developed from a brief period of observation in a convenient area near the theatre suite to a more prolonged and active period of monitoring and intervention in a specifically designed clinical environment.

The NHS Estates Agency of the Department of Health issues regulations and guidelines with respect to the design and building of hospitals and their facilities. Health Building Note (HBN) 26 refers to operating departments, including recovery rooms [2]. Other factors involved in design include guidance on fire precautions (Health Technical Memoranda, Fire Practice Notes), operational management (Health Guidance Notes), specialised building systems (Health Technical Memoranda), engineering services (Model Engineering Specifications), contracts and commissioning (Concode) and recommendations on energy, water and waste. Details of these guidelines can be found on the NHS Estates website [3].

The recovery suite should be in a central position within the theatre complex enabling ease of access from the operating theatre but with a separate outside access for transfer of patients to the ward. HBN 26 relates the size of a recovery room facility to the number of operating theatres served, e.g. a recovery area of 164 m<sup>2</sup> for a department of eight theatres [4]. However, it recognises that the size and number of beds should also reflect the number of cases per session and the average time spent in recovery. The ratio of beds to operating theatres should not be less than two. The beds should allow unobstructed access for trolleys, X-ray equipment, resuscitation carts and clinical staff. The facility should be open-plan allowing each recovery area to be observed but with the provision of curtains for optional patient privacy.

The recovery room should be mechanically ventilated as the air is polluted by anaesthetic gases. Other facilities should include storage areas for equipment, a dirty utility room, a secure supply of drugs, easy access to sinks and space for information technology and clerical activities. All recovery rooms should have pipeline outlets for suction, oxygen and air. An exhaled gas scavenging system must be available for the occasional use of an anaesthetic machine. The décor should provide an attractive ambiance and, if possible, windows should be present. Lighting should not be harsh and should comply with recommended standards [2]. Local lighting to assist clinical examination must also be available. Noise levels should be kept as low as possible and the ceiling should be sound absorbent.

Good communication systems linking recovery room staff with operating theatres, wards and other clinical facilities are essential. **An effective emergency call**

**system must be in place** with alarm and telephone or intercom links to operating theatres and rest areas. All members of staff must be aware of this system and it should be tested at least weekly.

There should be access to a staff rest area near to, but outside, the immediate recovery area. Other facilities should include toilets, showers, clean duty clothes and secure storage for personal possessions. Patient and staff safety should be assured by appropriate security systems, especially at night.

## 2. Equipment and drugs

An appropriate standard of monitoring should be maintained until the patient is fully recovered from anaesthesia [5]. Clinical observation should be supplemented by a minimum of pulse oximetry and non-invasive blood pressure monitoring. An ECG, nerve stimulator, thermometer and capnograph should be immediately available. Ideally, there should be compatibility between operating theatre, recovery room and ward equipment.

All drugs, equipment, fluids and algorithms required for resuscitation and management of anaesthetic and surgical complications should be immediately available.

## 3. Recovery room staff

No fewer than two staff should be present when there is a patient in the recovery room who does not fulfil the criteria for discharge to the ward. At such times, there should be an anaesthetist, supernumerary to requirements in the operating theatres, immediately available for the recovery room. Dedicated anaesthetic sessions in the recovery room should be considered in large busy units.

The provision of a satisfactory quality of care during recovery from anaesthesia and surgery relies heavily on investment in the education and training of recovery room staff. Maintenance of standards requires continuous update, e.g. resuscitation skills, application of new techniques, advances in pain management. Recovery room staff are specialists and often play a key role in the education of others, including other theatre staff, ward-based nurses, midwives and trainee doctors.

All specialist staff should have received appropriate training, ideally to a nationally recognised standard. Training should be tailored to meet the needs of the individual and recovery room but practical training and maintenance of skills must supplement theoretical knowledge.

### Core skills include:

- i. Assessment of vital signs and overall patient status and initiation of management leading to their improvement.
- ii. Competence in all aspects of basic life support. At all times, at least one member of staff should be a certified ALS provider and, for children, hold an appropriate paediatric life support qualification. All staff should be encouraged to attain and maintain at least one 'provider' qualification.
- iii. Assessment of fluid balance and management of intravenous infusions.
- iv. Intravenous administration of appropriate drugs.
- v. Administration of analgesics, anti-emetics and other drugs by all appropriate routes and use of associated equipment. This should be guided by local protocols.
- vi. Initiation of appropriate investigations, often using local protocols.

Continued professional development and the training of other staff is facilitated by activities such as the establishment of lead practitioners in certain areas (e.g. pain relief, life support, infection control, liaison with ward staff, health and safety matters), a training co-ordinator, rotation of duties with the local high dependency unit (HDU) and/or critical care unit (CCU), an audit programme and teaching displays, journal clubs and tutorials.

## 4. Transferring a patient to the recovery room

The transfer of patients from the operating theatre to recovery room and elsewhere has been considered in two publications by the Association of Anaesthetists [5,6]. Before transfer, the anaesthetist should be satisfied that the recovery staff are competent and able to take responsibility for the patient. If this cannot be assured, the anaesthetist should stay with the patient, either in the operating theatre or recovery room, until the patient is fit to return to the ward. It is essential for the anaesthetist to formally hand over care of the patient to a qualified member of the recovery room staff.

The patient should be physiologically stable on departure from the operating theatre and the anaesthetist must decide on the need for monitoring during transfer. This will depend on factors such as proximity of the recovery room, level of consciousness and respiratory and cardiovascular status. If the recovery room is not immediately adjacent to the operating theatre, or if the patient's condition is poor, adequate mobile monitoring is required i.e. a minimum of pulse oximetry and non-invasive blood pressure with the immediate availability of an ECG, nerve stimulator, means of measuring temperature and capnograph [5]. The anaesthetist is responsible for ensuring that this transfer is accomplished safely.

Supplemental oxygen should be administered to all patients during transfer.

## 5. Management of patients in the recovery room

**Patients must be observed on a one-to-one basis by an anaesthetist, recovery nurse or other properly trained member of staff until they have regained airway control and cardiovascular stability and are able to communicate.** This recommendation is paramount and must be observed, even if it causes delay in the throughput of patients. All recovery rooms must be staffed to a level which allows this to be routine practice, even in times of peak activity. Life-threatening complications occur during this period and failure to provide adequate care may prove catastrophic for the patient and result in serious medico-legal consequences.

Patients must be kept under clinical observation at all times and all measurements should be recorded. Ideally, this should be on a dedicated section of the anaesthetic chart. The introduction of automatic recording systems is encouraged. The frequency of observations will depend on the stage of recovery, nature of surgery and clinical condition of the patient. It should not be influenced by staffing levels. The following information should be recorded:

- i. level of consciousness
- ii. haemoglobin oxygen saturation and oxygen administration
- iii. blood pressure
- iv. respiratory frequency
- v. heart rate and rhythm
- vi. pain intensity e.g. verbal rating scale (none, mild, moderate, severe)
- vii. intravenous infusions
- viii. drugs administered
- ix. other parameters (depending on circumstances) e.g. temperature, urinary output, central venous pressure, end-tidal CO<sub>2</sub>, surgical drainage.

For all patients, the name, hospital number, time of admission, time of discharge and destination should be recorded in a central register.

## **Pain and emesis**

No patient should be returned to the general ward until control of emesis and postoperative pain is satisfactory. All recovery staff should be specifically trained in the use of patient-controlled analgesia and epidurals. Nurse-administration of intravenous analgesics (including opioids) prescribed by the anaesthetists as part of a specific protocol facilitates rapid and flexible pain control. Such protocols incorporate precise instructions on administration and the recognition and management of side-effects. Nurse-administration of opioids should not occur unless there is the immediate availability of an anaesthetist.

## **Tracheal tubes and other airway devices**

On many occasions, patients will be handed over to the recovery nurse with a laryngeal mask airway in situ. The nurse must be specifically trained in the management of these patients and in the removal of the laryngeal mask airway. An anaesthetist should be immediately available to assist if problems occur whilst the laryngeal mask airway is in situ or being removed by a qualified member of the recovery room staff.

The removal of tracheal tubes from patients in the recovery room is the responsibility of an anaesthetist.

## **6. Discharge from the recovery room**

Every recovery room should have well-defined criteria for discharge of patients to the general ward or other clinical areas. The following criteria must be fulfilled:

- i. The patient is fully conscious without excessive stimulation, able to maintain a clear airway and exhibits protective airway reflexes.
- ii. Respiration and oxygenation are satisfactory.
- iii. The cardiovascular system is stable with no unexplained cardiac irregularity or persistent bleeding. The specific values of pulse and blood pressure should approximate to normal pre-operative values or be at an acceptable level commensurate with the planned postoperative care. Peripheral perfusion should be adequate.
- iv. Pain and emesis should be controlled and suitable analgesic and anti-emetic regimens prescribed.
- v. Temperature should be within acceptable limits. Patients should not be returned to the ward if significant hypothermia is present.
- vi. Oxygen and intravenous therapy, if appropriate, should be prescribed.

Discharge from the recovery room is the responsibility of the anaesthetist but the adoption of strict discharge criteria allows this to be delegated to recovery staff. If the discharge criteria are not achieved, the patient should remain in the recovery room and the anaesthetist informed. An anaesthetist must be available at all times when a patient who has not reached the criteria for discharge is present in the recovery room.

If there is any doubt as to whether a patient fulfils the criteria, or if there has been a problem during the recovery period, the anaesthetist who administered the anaesthetic (or another anaesthetist with special duties in the recovery room) must assess the patient. After medical assessment, patients who do not fulfil the discharge criteria may be transferred to a HDU or CCU.

### **Handing over to ward staff**

Patients should be transferred to the ward accompanied by a suitably trained member of staff and porter. The anaesthetic record, together with the recovery and prescription charts, must accompany the patient. The recovery nurse must ensure that full clinical details are relayed to the ward nurse with particular emphasis on problems and syringe pump settings.

## 7. Local anaesthesia

The principles of management in any patient undergoing local anaesthesia, either alone or as part of a general anaesthetic technique, are the same as any other patient. Information given on handover to recovery staff should include site and type of local block, drug and dosage used and anticipated duration of action. Instructions for ward staff should include further pain relief and positional restrictions for the patient. Information for the patient includes the anticipation of return of sensation and/or motor function, care with hot and cold items and weight-bearing.

Considerations after spinal and epidural anaesthesia include noting the level of analgesia achieved, cardiovascular status, sitting up (when and how much), bladder care, details of any continuous infusions, degree of motor block and time of likely recovery. Many of these considerations apply also to plexus block.

## 8. Children

Children have special needs reflecting fundamental psychological, anatomical and physiological differences to adults. These needs are best met by having a designated paediatric recovery area which is child friendly and staffed by nurses trained in the recovery of paediatric patients. The area should be kept warm to prevent hypothermia and provision should be made for a parent or carer to rejoin their children in the recovery area as soon as they are awake.

Equipment must include a full range of sizes of face masks, breathing systems, airways, nasal prongs and tracheal tubes. Essential monitoring equipment includes a full range of paediatric non-invasive blood pressure cuffs and small pulse oximeter probes.

Children are more likely to become restless or disorientated postoperatively and require one-to-one supervision throughout their recovery room stay. Postoperative vomiting, bradycardia and laryngeal spasm are more common. The latter can have devastating effects as small children become hypoxaemic 2-3 times faster than adults.

Children should not be denied adequate pain relief due to fear of side-effects. It can be difficult to assess pain, especially in the pre-verbal child. However, suitable techniques are available. In general, intramuscular injections should be avoided.

## 9. Patients' perspective

The purpose and nature of the recovery room should be explained to the patient before anaesthesia. Ideally, this should be included in written information available before admission to hospital. *Anaesthesia and Anaesthetists: Information for Patients and their Relatives* published by the Association of Anaesthetists is an example of this [7]. Although the design of recovery facilities is, by necessity, one of open plan, there should be provision for patient privacy and dignity e.g. curtains. Most patients find recovery rooms unpleasant and they should be transferred as soon as discharge criteria are met.

Staff in some hospitals may require access to translators to facilitate communication with non-English speaking patients.

## 10. Anaesthesia and recovery in special areas

Anaesthesia is often administered in areas such as obstetric, X-ray, cardiology, dental and psychiatric units and in community hospitals. **All standards and guidelines described in this document must be fulfilled at any site where anaesthesia is administered.**

## 11. Critically ill patients

The primary goal of the recovery room is to provide the postoperative patient with the optimum standard of care and to effectively maintain the flow of surgical lists. Unfortunately, critically ill patients are often managed in the recovery room during times of bed or staff shortages on the CCU.

During such times, it must be recognised that the primary responsibility for the patient lies with the Consultant in charge of the CCU and his/her team. A CCU-trained nurse must care for the patient on a one-to-one basis, with immediate access to senior CCU nursing assistance. The standard of medical and nursing care should be equal to that within the CCU and a specific action plan should be formulated by the Intensivists to facilitate discharge to a more appropriate area as soon as possible.

## 12. Care of the dying patient

Occasionally, a patient who is expected to die imminently will be taken to the recovery room. The patient should be managed in isolation from others who should not be aware of the situation. Relatives must be able to be present and a dedicated nurse should be available.

## 13. Audit in the recovery room

It is important to monitor the quality of immediate postoperative care and audit it against local and national standards. The reports of the National Confidential Enquiry into Postoperative Deaths [8] make frequent reference to the lack of appropriate postoperative facilities, especially for emergency surgery.

The following topics for audit are recommended by the Royal College of Anaesthetists [9]:

- i. Recovery room staffing
- ii. Monitoring in recovery
- iii. Oxygen therapy
- iv. Airway problems
- v. Hypertension and hypotension
- vi. Postoperative nausea and vomiting
- vii. Record keeping
- viii. Discharge protocols
- ix. Unplanned admissions to HDU and CCU
- x. Postoperative visiting (by the anaesthetist)

Acute pain management starts in the recovery room and the quality of pain relief on arrival and on discharge to the ward should be audited. There should be a local system for the documentation of, and response to, critical incidents.

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