

Is my patient adequately awake for recovery room discharge?

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Abstract

Recovery after anaesthesia must be monitored carefully, and patients should be assessed before they are discharged to the ward or some other area where they are less likely to receive the same level of care. While the anaesthetist is responsible for his or her patient until he or she is discharged from the recovery room, the decision to make the release is usually delegated to a responsible trained nurse. Therefore, strict discharge criteria are essential.

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Introduction

Recovery after anaesthesia must be monitored carefully, and patients should be assessed before they are discharged to the ward or some other area where they are less likely to receive the same level of care. While the anaesthetist is responsible for his or her patient until he or she is discharged from the recovery room, the decision to make the release is usually delegated to a responsible trained nurse. Therefore, strict discharge criteria are essential. Discharge criteria are used to prevent complications in patients, and to ensure consistent, reproducible and complete care of all patients who are sent there from theatre to recover from their anaesthetic. However, discharge criteria should not replace common sense. Patients who do not fulfill the discharge criteria, or whose condition is believed by the recovery nurse to be incongruous with discharge to the ward, should be assessed by the anaesthetist who was responsible for the anaesthetic.

Recovery from anaesthesia has been divided into three phases:¹

- *Phase 1 (early recovery)*: This phase extends from discontinuation of the anaesthetic until the time when the patient has recovered their protective reflexes and has fully recovered from any motor block. Usually, this occurs in the recovery room, post-anaesthesia care unit or intensive care unit.

- *Phase 2*: Phase 2 includes the times from when the patient has fulfilled the discharge criteria and the decision has been taken to send him or her to the ward. This is a period of ongoing recovery. Generally, preparations are made to send the patient home in the event of day-case surgery.
- *Phase 3*: This phase covers the period of ongoing physical and psychological recovery. This may occur at home, in the ward, or at other facilities.

Usually, emergence from general anaesthesia is uneventful, but in some cases it can be accompanied by complications in which organ systems may be implicated. The most common complications in the postoperative period are nausea and vomiting (9.8%), hypoxia with the need for upper airway support (6.8%), hypothermia and shivering (5-65%), delirium in patients older patients (10% in those who are over the age of 50) and hypotension (2.7%).² However, airway or respiratory problems and cardiovascular instability constitute the majority of serious adverse outcomes.³

It is particularly important that these systems are monitored in the recovery room. They need to have stabilised before the patient can be discharged to the ward. The anaesthetist is responsible for his or her patient until he or she has been discharged from the recovery room. However, the decision to release the patient is generally delegated to a responsible trained nurse. This is why strict discharge criteria, usually hospital sanctioned, or scoring systems are used.

Table I: Modified Aldrete Score⁵

Variable evaluated	Score
Activity	
Able to move four extremities on command	2
Able to move two extremities on command	1
Unable to move any of the extremities on command	0
Breathing	
Able to breathe deeply and to cough freely	2
Dyspnoea	1
Apnoea	0
Circulation	
Systemic blood pressure \pm 20% of pre-anaesthetic level	2
Systemic blood pressure 20-49% of pre-anaesthetic level	1
Systemic blood pressure \pm 50% of pre-anaesthetic level	0
Consciousness	
Fully awake	2
Arousable	1
Not responding	0
Oxygen saturation	
> 92% on room air	2
Needs supplemental oxygen to keep saturation > 92%	1
< 90% even with supplemental oxygen	0

In 1970, Aldrete and Kroulik introduced a post-anaesthesia scoring system designed to monitor recovery from anaesthesia.⁴ This was updated in 1995 once pulse oximetry had become a standard of care (Table I).⁵ The scoring system incorporates five variables, with a score of 0, 1 or 2 assigned to each. A total score of 9 out of a possible 10 is considered to be adequate for discharge from recovery.

There are concerns about some of these criteria; the obvious one being about the baseline blood pressure. It is known that anxiety, fear and pre-existing haemodynamic instability affect pre-anaesthetic blood pressure, so using this as a baseline may be inappropriate for a particular patient.

Similarly, if a patient has had an epidural and is unable to move both legs, keeping him or her in recovery until her or she attains a score of 2 in the activity criteria would be misplaced. The patient must score highly in all other criteria in order for discharge to occur.

Nevertheless, this is a good, reproducible set of goals that should be achieved before any patient is released back to the ward.

The most common cause of airway obstruction in the immediate postoperative period is loss of pharyngeal

Table II: The modified post-anaesthesia discharge scoring system¹

Variable evaluated	Score
Vital signs: blood pressure and heart rate	
Able to move four extremities on command	2
Able to move two extremities on command	1
Unable to move any of the extremities on command	0
Ambulation	
Steady gait without dizziness	2
Requires assistance	1
Unable to ambulate, dizziness	0
Nausea and vomiting	
None to minimal	2
Moderate	1
Severe	0
Pain	
None to minimal	2
Moderate	1
Severe	0
Surgical bleeding: what is expected for that procedure?	
<i>None to minimal:</i> The dressing does not need to be changed	2
<i>Moderate:</i> Up to two dressing changes are needed	1
<i>Severe:</i> More than three dressing changes are needed	0

muscle tone in a sedated or obtunded patient. The residual effects of sedatives, opioid analgesics and nondepolarising neuromuscular blockers can contribute to loss of tone. Antagonists to these drugs: flumazenil for benzodiazepines, naloxone for opioids and neostigmine, and glycopyrrolate or sugammadex for nondepolarising neuromuscular blockers, must be available.

Residual muscle relaxation is a potentially dangerous situation. Pharyngeal function does not normalise until an adductor pollicis train-of-four (TOF) is greater than 0.90. Nerve stimulators are not used routinely in our local recovery rooms, and are usually only employed by the anaesthetist. The traditionally used head lift correlates to a TOF of 0.60, so a better test is to get the patient to oppose their incisors against a tongue depressor. A strong opposition correlates to a TOF of 0.85.³

When there is increased complexity of surgery and a wide variation in the type of patients (children, geriatrics and the obese), as well as an increase in day-case surgery, with patients expecting to go home soon after their procedure, further criteria should be considered. Other scoring systems (Table II) that are used include vital signs, ambulation and

mental status, pain and nausea or vomiting, surgical bleeding and fluid intake and output. The last factor is controversial. Studies have suggested that delaying discharge until the patient has voided is unnecessary in most cases, increases costs and does not increase complications if the patient is discharged before voiding.

In the day-case setting, postoperative pain is the most common cause for a delay in discharge and unplanned readmission. Nausea and vomiting is seen in 9.8% of cases in recovery rooms. These are unpleasant for the patient, may be difficult to treat, and often delay the patient's full recovery and discharge to the dissatisfaction of all parties.

Suitability for discharge is dependent on many factors, including discharge criteria. The patient should be alert and orientated, or the mental status should have returned to baseline. A minimum mandatory stay is not required. It should be individualised. Vital signs should be stable and within acceptable limits. The patient must be discharged

from the recovery room by a qualified responsible nurse for transfer back to the ward, with written instructions for postoperative treatment and care. In this way, complications can be minimised.³

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