

Guidelines on Admission and Discharge for Adult Intermediate Care Units



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Guidelines on Admission and Discharge for Adult Intermediate Care Units

American College of Critical Care Medicine
of the Society of Critical Care Medicine

INTRODUCTION

In acute care hospitals, one can identify a patient population that does not require intensive care but needs more care than that provided on a general ward. These patients may require frequent monitoring of vital signs and/or nursing interventions, but usually do not require invasive monitoring. In a study of 706 surgical and medical ICU patients, this patient population accounted for approximately 22% of all ICU bed days (1). In a more recent study of 17,440 ICU admissions, 6,180 patients were admitted strictly for intensive monitoring, though they had a less than 10% risk for requiring active treatment based on this monitoring (2). As a consequence, intermediate care has been proposed as a more appropriate means of resource utilization for these patients (2-6). Intermediate care areas can be represented as multipurpose "progressive care units" or as single-organ subspecialty floors such as cardiac telemetry, surgical (thoracic, vascular, etc.), neurosurgical/neurological monitoring areas, or chronic ventilator respiratory care units (7-11). In light of the recent emphasis on cost containment, the intermediate care unit concept is suggested as a strategy that promotes greater flexibility in patient triage, increases accessibility to limited intensive care and provides a cost-effective alternative to critical care unit admission, particularly for patients with a low risk of, but potential for, major complications and who have been admitted for routine monitoring (7, 11-16). Moreover, patient satisfaction may be increased since an intermediate care environment is less noisy and may have more liberal family visitation policies (17).

There are few reports demonstrating the efficacy of intermediate care as a graded option between conventional ward care and intensive care. Most studies are retrospective or uncontrolled observational series (13). There is only one randomized, controlled study demonstrating reduced costs without a negative impact on outcome (16). Franklin and colleagues observed a decrease in the case fatality rate of a large urban medical service after the introduction of an intermediate care unit, noting an important reduction in the number of "low risk monitoring" admissions to their intensive care unit; this unit effectively increased the ready availability of critical care services to those patients most urgently in need, streamlining the ICU admission process, and attenuating unnecessary ICU stays or delays in transfer (7). In addition, these changes were associated with fewer ward cardiac arrests, presumably because of more timely and appropriate levels of observation.

Byrick et al. compared the initial impact on ICU utilization of opening an intermediate care unit, followed by closure of that unit (6,12). The intermediate care unit led to earlier extubation and discharge from the ICU, and shortened overall length of stay with no change in outcome. The availability of intermediate care increased ICU bed availability and freed the operating room schedule from being ICU-dependent. Nine years after opening, the intermediate care unit was dismantled due to hospital budgetary constraints. This closure led to a four-fold increase in ICU admissions with a lower severity of illness. The lack of stepdown resources caused a reduction in triage flexibility, which negatively impacted on ICU discharge planning and required longer ICU stays for "sicker" patients. Based on this comparison, intermediate care was reinstated (12).

Intermediate care reduces hospital costs by decreasing staffing to coincide with the need of the patients (2,3). Since personnel costs may comprise up to 80% of total ICU expenses, the savings afforded by a reduction in staffing necessary for patients with intermediate severities of illness can be substantial (14-18). These savings may be overstated if the reduction in nursing staff is partially offset by the need for additional healthcare team members (i.e., respiratory therapy). Similarly, there may not be a large difference in supplies and capital expenditures if the reduced use of invasive monitoring is counterbalanced by implementation of any of an increasing array of noninvasive monitoring equipment (3). However, there may be real and substantial savings from the change in protocol practice that occurs with transfer out of an ICU. Douglas et al. (16) established a stepdown facility for the

"chronically critically ill" (ICU length of stay >7 days, hemodynamically stable). This study is the only prospective, randomized trial to triage patients to an intermediate care unit who qualified based on pre-established criteria (16). The role of house officers was eliminated and the number of routine diagnostic laboratory tests and radiographs was sharply reduced. This change in protocol practice translated into "hidden" but substantial savings (16).

The investigation by Franklin et al. found a decrease in mortality with intermediate care, but further research is needed in this area (7). Sophisticated designs for the study of intermediate care should include concurrent, randomized controls rather than using sequential prospective study periods. Little attempt has been made to quantify the impact of intermediate care on reducing ICU readmissions ("bouncebacks"), i.e., patients who are discharged from the ICU and require urgent return within 48 to 72 hours (19, 20). The costs of different levels of care must also be studied, with methods that control for diagnosis, comorbidities and severity of illness (13). These kinds of studies are needed before the benefits and limitations of intermediate care can be fully appreciated. Research that evaluates these guidelines will promote their standardization and improvement, and this may improve patient outcome.

RECOMMENDATIONS

The American College of Critical Care Medicine developed by consensus the following recommendations to promote safe triage of patients to intermediate care units.

Rating System

Level 1: Convincingly justifiable on scientific evidence alone.

Level 2: Reasonably justifiable by available scientific evidence and strongly supported by expert critical care opinion.

Level 3: Adequate scientific evidence is lacking but widely supported by available data and expert critical care opinion.

1. (Level 2) The intermediate care unit serves as a place for the monitoring and care of patients with moderate or potentially severe physiologic instability, requiring technical support but not necessarily artificial life support. The Intermediate Care Unit is reserved for those patients requiring less care than standard intensive care but more than that which is available from ward care.
2. (Level 1) The intermediate care unit reduces costs, reduces ICU length of stay without increasing hospital length of stay, does not impact negatively on patient outcome and improves patient/family satisfaction* by providing a physical environment that is quieter and calmer than the ICU.
3. (Level 3) The intermediate care unit should have designated Physician and Nurse Directors who can be responsible for assuring appropriate patient triage through enforcement of the admission and discharge criteria. This triage must involve personnel from the general wards, the ICU, the post-anesthesia care unit (i.e., recovery room), and others so that a system is developed which meets the needs of the patient and the institution efficiently and economically.

**Shown for pediatric but not adult ICUs*

4. (Level 3) The Physician and Nurse Directors should determine the limits of care that can be rendered in the intermediate care unit, based on institutional needs, staff qualifications and unit resources. This assessment includes the extent of invasive monitoring, telemetry, mechanical ventilation and types of intravenous medications.
5. (Level 3) Each intermediate care unit should develop specific admission and discharge policies and procedures, patient care standards, and outcome criteria for quality assessment (continuous quality improvement). Tools should be developed to monitor outcomes and other performance measures. Compliance with admission and discharge policies should be monitored and deviations reported to the hospital quality improvement section for action.

Listed below are admission and discharge guidelines with some examples of specific conditions or diseases that could qualify for intermediate care.

I. Admission Criteria

A. Cardiac System

1. Low-probability myocardial infarction; rule out myocardial infarction.
2. Hemodynamically stable myocardial infarction.
3. Any hemodynamically stable dysrhythmia.
4. Any hemodynamically stable patient without evidence of myocardial infarction but requiring temporary or permanent pacemaker.
5. Mild-to-moderate congestive heart failure without shock (Killip Class I, II).
6. Hypertensive urgency without evidence of end-organ damage.

B. Pulmonary System

1. Medically stable ventilator patients for weaning and chronic care.
2. Hemodynamically stable patients with evidence of compromised gas exchange and underlying disease with the potential for worsening respiratory insufficiency who require frequent observation and/or nasal continuous positive airway pressure.
3. Patients who require frequent vital signs or aggressive pulmonary physiotherapy.

C. Neurologic Disorders

1. Patients with established, stable stroke who require frequent neurologic assessments or frequent suctioning or turning.
2. Acute traumatic brain injury patients who have a Glasgow Coma Scale above 9 but require frequent monitoring for signs of neurologic deterioration.
3. Stable severe traumatic brain injury patients who require frequent positioning and pulmonary toilet.
4. Subarachnoid hemorrhage patients post-aneurysm clipping who require observation for signs of vasospasm or hydrocephalus.
5. Stable neurosurgical patients who require a lumbar drain for treatment of cerebrospinal fluid leak.
6. Stable cervical spinal cord injured patients.
7. Patients with chronic but stable neurologic disorders, such as neuromuscular disorders, who required frequent nursing interventions.
8. Grade I-II subarachnoid hemorrhage patients awaiting surgery.
9. Patients with ventriculostomies who are awake and alert awaiting ventriculo-peritoneal (V-P) shunt.

D. Drug Ingestion and Drug Overdose

1. Any patient requiring frequent neurologic, pulmonary, or cardiac monitoring for a drug ingestion or overdose who is hemodynamically stable.

E. Gastrointestinal (GI) Disorders

1. GI bleeding with minimal orthostatic hypotension responsive to fluid therapy.
2. Variceal bleeding without evidence of bright red blood by gastric aspirate and stable vital signs.
3. Acute liver failure with stable vital signs.

F. Endocrine

1. Diabetic ketoacidosis patients requiring constant intravenous infusion of insulin, or frequent injections of regular insulin during the early regulation phase after recovery from diabetes ketoacidosis.
2. Hyperosmolar state with resolution of coma.
3. Thyrotoxicosis, hypothyroid state requiring frequent monitoring.

G. Surgical

1. The postoperative patient who, following major surgery, is hemodynamically stable but may require fluid resuscitation and transfusion due to major fluid shifts.
2. The postoperative patient who requires close nurse monitoring during the first 24 hrs. Examples include but are not limited to carotid endarterectomy; peripheral vascular reconstruction; the neurosurgical patient requiring frequent neurological exams; V-P shunt revision, renal transplant, etc.

H. Miscellaneous

1. Appropriately treated and resolving early sepsis without evidence of shock or secondary organ failure.
2. Patients requiring closely titrated fluid management.
3. Obstetrical patients admitted at any point in their pregnancy and postpartum period for treatment of pre-eclampsia/eclampsia or other medical problems.
4. Any patient requiring frequent nursing observation or extensive time requirement for wound management who does not fall under the above categories may be considered for admission (example: Addison's disease, renal failure, delirium tremens, hypercalcemia).

II. Patients who are usually *NOT* appropriate for admission to Intermediate Care include:

- A. Complicated acute myocardial infarction with temporary pacemaker, angina, hemodynamic instability, significant pulmonary edema or significant ventricular dysrhythmias.
- B. Patients requiring heavy nursing loads and titrated patient care of 12 to 24 hrs/day.
- C. Patients with acute respiratory failure who are recently intubated or at imminent risk of requiring intubation.
- D. Patients requiring invasive hemodynamic monitoring with a pulmonary artery or left atrial catheter, or an intracranial pressure monitor.
- E. Patients in status epilepticus.
- F. Patients with catastrophic brain illness or injury who are not to be resuscitated and are not candidates for organ donation.
- G. Patients from whom aggressive modalities of care are being withheld or have been withdrawn, such that they are receiving only comfort measures.

III. Discharge Criteria:

Discharge of patients from an intermediate care unit shall take place:

- A. When a patient's physiologic status has stabilized and the need for intensive patient monitoring is no longer necessary and the patient can be cared for on a general unit.
- B. When a patient's physiological status has deteriorated and active life support is required or highly likely, the patient will be transferred to a critical care unit per unit-specific protocol.

IV. Administrative Recommendations to Facilitate Appropriate Admissions, Discharges and Delivery of Intermediate Care.

A. Personnel

1. A physician director must be appointed who, on the basis of training, interests, type of practice, and availability can give clinical, administrative and educational direction to the Intermediate Care Unit. The Physician Director should meet "Guidelines for the definition of an intensivist and the practice of critical care medicine," published by the Society of Critical Care Medicine (21). Collaboration with nursing and ancillary staff should be emphasized. The Director should assume responsibility for assuring the quality, safety, and appropriateness of care in the intermediate care unit. The Director

- must work collaboratively with the Directors of other areas in the institution so that patient care, triage, and patient flow are effective and efficient.
2. A nursing director should be appointed in order to establish precise lines of authority, responsibility, and accountability for delivery of high-quality, safe and appropriate nursing care. The Nurse Director should be an RN with a BSN degree and should have had at least 3 yrs experience working in an ICU. In major teaching institutions the Nurse Director should have a graduate degree (i.e., MS, MSN) with at least 5 yrs of experience in critical care nursing. The Nursing Director shares responsibility with the Physician Director for quality of care and patient safety, and ensures ongoing continuing education and professional development of the nursing staff.
 3. The exact nurse-to-patient ratio should be based on patient acuity of illness.
 4. Available ancillary staffing should include professionals from respiratory therapy, clinical pharmacy, nutritional support, social work, and rehabilitation services. These staff members should be integrated into a multidisciplinary intermediate care unit team. They must interact with the ICU, post-anesthesia care unit, and other unit staffs.
 5. The multidisciplinary team of professionals should meet on a regular basis to identify and solve problems through quality assurance and continuous quality improvement activities.

SUMMARY

The intermediate care unit promotes efficient and effective care by increasing the flexibility of patient triage, utilizing personnel efficiently, and providing cost-effective care.

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These guidelines have been developed by a Task Force of the American College of Critical Care Medicine of the Society of Critical Care Medicine, and thereafter reviewed by the Society's Council. These guidelines reflect the official opinion of the Society of Critical Care Medicine and should not be construed to reflect the views of the specialty boards or any other professional medical organization.

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