



Levels of Critical Care for Adult Patients

STANDARDS AND GUIDELINES

Intensive Care Society © 2009

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Contents

1. Introduction
2. General principles
3. Definition of Levels of Care

Introduction

This document describes the levels of care required by critically ill patients including the care required by patients who may deteriorate. It specifically does not comment on, or recommend, staffing establishments or skill mix in relation to each level. It follows the approach of allocating levels of care to patients according to their clinical needs and disregards location or the prevailing nurse to patient ratio. 'Comprehensive Critical Care'¹ recommended a new classification for critical care patients according to clinical need of the patient:

Level 0

Patients whose needs can be met through normal ward care in an acute hospital.

Level 1

Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care whose needs can be met on an acute ward with additional advice and support from the critical care team.

Level 2

Patients requiring more detailed observation or intervention including support for a single failing organ system or postoperative care, and those stepping down from higher levels of care.

Level 3

Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organ systems. This level included all complex patients requiring support for multi-organ failure.

These proposed definitions were then further refined by the Standards Committee of the Intensive Care Society and published in the "ICS Levels of Critical Care for Adult Patients 2002" document². Since 2002 the speciality has created and overseen the introduction of a Minimum Dataset into practice.

Collection of this Dataset (CCMDS)³ has been mandated since April 2006 and will support the introduction of 'Payment by Results' for Critical Care by linking clinical interventions for critically ill patients to remuneration of activity.

Implementation of CCMDS, along with advances in clinical care, has led to the existing ICS document on Levels of Care creating some operational difficulties in Trusts particularly with respect to what constitutes Level 2 and Level 3 care. Furthermore, NICE guideline no 50 "Acutely ill Patients in Hospital"⁴ and the Acute Care Competency Framework⁵ have assisted in providing more clarity on

the definition for Level 1 care. The existing standards document has therefore been amended but with the overall aim of maintaining the practical value of classifying critically ill patients or patients with the potential to become critically ill.

This document has been agreed with the Critical Care Stakeholders' Forum and the Department of Health through the Critical Care Information Advisory Group (CCIAG), and should be regarded as the standard for data collection until further notice. Updates will be notified via the ICS and NHS websites.

General Principles

Clinical judgement should be used to determine which level of care would be most appropriate based on the criteria below.

Although a lower level of care will usually require a lower nurse to patient ratio or reduced critical care support, this may not apply in all circumstances and the aim should be to be flexible in the provision of staff resources to meet the needs of the patient. The level of care assigned to a patient will influence, but not determine, staffing requirements.

The location of patients does not determine their level of care.

Patients who have 'not for resuscitation' orders written or who are receiving palliative care may also fulfil the criteria listed below. It may be appropriate to modify the actual level of critical care delivered to these patients whilst enhancing their palliative care.

The examples in the right hand column are provided to assist and are not intended to be exhaustive or prescriptive.

Definition of Levels of Care

Level 0 Criteria	Examples
Requires hospitalisation Needs can be met through normal ward care.	<ul style="list-style-type: none">▪ Intravenous therapy.▪ Observations required less frequently than 4 hrly.

Level 1 Criteria	Examples
Patients recently discharged from a higher level of care	Patients requiring a minimum of 4 hrly observations.
Patients in need of additional monitoring/clinical interventions, clinical input or advice	<ul style="list-style-type: none"> ▪ Requiring a minimum of 4 hrly observation on the basis of clinical need. ▪ Patients requiring continuous oxygen therapy. ▪ Boluses of intravenous fluid (need not determined by CVP). ▪ Epidural analgesia or Patient Controlled Analgesia in use. ▪ Parenteral Nutrition. ▪ Postoperative surgical patients who are still requiring 4 hrly observations. ▪ Patients requiring administration of bolus intravenous drugs through a Central Venous Catheter. ▪ Patients with a tracheostomy. ▪ Patients with a chest drain in situ. ▪ Patients requiring a minimum of 4 hourly GCS assessment. ▪ Diabetic patients receiving a continuous infusion of insulin. ▪ Patients who are at risk of aspiration pneumonia. ▪ Patients on established intermittent renal support. ▪ Patients requiring respiratory physiotherapy to treat or prevent respiratory failure. ▪ Patients requiring for clinical reasons frequent (> 2x day) Peak Expiratory Flow rate measurement.
Patients requiring critical care outreach service support	<ul style="list-style-type: none"> ▪ Abnormal vital signs but not requiring a higher level of critical care. ▪ Risk of clinical deterioration and potential need to step up to level 2 care. Patients fulfil the “medium” risk category as defined by NICE Guideline No: 50.

Level 2 Criteria	Examples
Patients needing pre-operative optimisation	<ul style="list-style-type: none"> ▪ Haemodynamic, renal or respiratory optimisation required prior to surgery. ▪ Invasive monitoring inserted (arterial line, CVP as a minimum).
Patients needing extended postoperative care	<ul style="list-style-type: none"> ▪ Immediate care following major elective surgery. ▪ Emergency surgery in unstable or high risk patients. ▪ Patients where there is a risk of postoperative complications or a need for enhanced interventions and monitoring.
Patients stepping down to Level 2 care from Level 3	<ul style="list-style-type: none"> ▪ Requiring a minimum of hourly observations. ▪ At risk of deterioration and requiring level 3 care again.
Patients receiving single organ support	
<p data-bbox="235 1066 604 1136">Patients receiving Basic Respiratory Support</p> <p data-bbox="235 1285 781 1535">NB When Basic Respiratory and Basic Cardiovascular support are provided at the same time during the same critical care spell and no other organ support is required, the care is considered to be Level 2 care</p>	<p data-bbox="816 1060 1295 1119">Basic Respiratory Support: Indicated by one or more of the following:</p> <ul style="list-style-type: none"> ▪ More than 50% oxygen delivered by face mask. (<i>Note, 50% has been chosen to identify the more seriously ill patients in a hospital and should not be recorded for short term increases in FiO2 such as for transfers or physiotherapy</i>). ▪ Close observation due to the potential for acute deterioration to the point of needing advanced respiratory support. (<i>e.g. severely compromised airway or deteriorating respiratory muscle function</i>). ▪ Physiotherapy or suction to clear secretions at least 2 hourly, whether via tracheostomy, mini-tracheostomy, or in the absence of an artificial airway. ▪ Patients recently extubated after a prolonged period of intubation and/or mechanical ventilation via an endotracheal tube for more than 24 hours.

	<ul style="list-style-type: none"> ▪ Mask CPAP or pressure supported ventilation. ▪ Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable.
<p>Patients receiving Basic Cardiovascular Support</p> <p>NB When Basic Respiratory and Basic Cardiovascular support are provided at the same time during the same critical care spell and no other organ support is required the care is considered to be Level 2 care</p>	<p>Basic Cardiovascular Support: Indicated by one or more of the following:</p> <ul style="list-style-type: none"> ▪ Use of a CVP line for monitoring of central venous pressure and/or the provision of central venous access to deliver titrated fluids to treat hypovolaemia. ▪ Treatment of circulatory instability due to hypovolaemia from any cause. ▪ Use of a CVP line for basic monitoring or central venous access to deliver therapeutic agents. ▪ Use of an arterial line for basic monitoring of the arterial pressure and/or sampling of arterial blood. ▪ Single intravenous vasoactive drug used to support or control arterial pressure, cardiac output or organ perfusion. ▪ Intravenous drugs to control cardiac arrhythmias.
<p>Renal Support</p> <p>Neurological Support</p>	<p>Renal Support: Indicated by:</p> <ul style="list-style-type: none"> ▪ Acute renal replacement therapy (eg.haemodialysis, haemofiltration etc.) ▪ or the provision of renal replacement therapy to a chronic renal failure patient who is requiring other acute organ support in a critical care situation. <p>Neurological Support: Indicated by one or more of the following:</p> <ul style="list-style-type: none"> ▪ Central nervous system depression sufficient to prejudice the airway and protective reflexes. ▪ Invasive neurological monitoring or treatment eg. ICP, jugular bulb sampling, external ventricular drain.

Dermatological Support

- Continuous intravenous medication to control seizures and/or continuous cerebral monitoring.
- Therapeutic hypothermia using cooling protocols or devices.

Dermatological Support:

These patients should continue to require a minimum of hourly observations and be at risk of needing to step up to level 3 care to fulfil this definition.

Indicated by one or more of the following:

- Patients with major skin rashes, exfoliation or burns. (*e.g. greater than 30% body surface area affected*).
- Use of multiple, large trauma dressings (*eg. multiple limb or limb and head dressings*).
- Use of complex dressings (*eg. open abdomen or large skin area greater than 30% of body surface area large skin area greater than 30% of body surface area, open abdomen, vacuum dressings or large trauma such as multiple limb or limb and head dressings*).

Hepatic Support

Hepatic Support:

Patients should require a minimum of hourly observations consequent on the risk of clinical deterioration and fulfil one of the following categories

- (a) Acute or chronic hepatocellular failure requiring management of coagulopathy and/or portal hypertension (including hepatic purification and detoxification techniques); or
- (b) Primary acute hepatocellular failure patients who are being considered for transplantation and require management of coagulopathy and/or portal hypertension (including hepatic purification and detoxification techniques).

Level 3 Criteria	Examples
<p>Patients receiving Advanced Respiratory Support alone</p>	<p>Advanced Respiratory Support: Indicated by:</p> <ul style="list-style-type: none"> ▪ Invasive mechanical ventilatory support (excluding mask CPAP or non-invasive pressure supported ventilation or CPAP applied via a trans-laryngeal tracheal tube). ▪ Extracorporeal respiratory support.
<p style="text-align: center;">or</p> <p>Patients receiving a minimum of 2 organs supported</p> <p>NB: Basic Respiratory and Basic Cardiovascular do not count as 2 organs if they occur simultaneously - see above under Level 2 care), but will count as Level 3 if another organ is supported at the same time</p>	<ul style="list-style-type: none"> ▪ Basic Respiratory and Neurological support. ▪ Basic Respiratory and Hepatic Support. ▪ Basic Respiratory and Renal support. ▪ Basic Cardiovascular and Hepatic support. ▪ Basic Cardiovascular and Renal support. ▪ Advanced Cardiovascular and Renal support. ▪ Advanced Cardiovascular and Hepatic support. ▪ Advanced Cardiovascular and Neurological support.
<p>Patients receiving Advanced Cardiovascular Support</p>	<p>Advanced Cardiovascular Support: Indicated by one or more of the following:</p> <ul style="list-style-type: none"> ▪ Multiple intravenous vasoactive and/or rhythm controlling drugs when used simultaneously to support or control arterial pressure, cardiac output or organ perfusion, (<i>eg. inotropes, amiodarone, nitrates</i>). ▪ Patients resuscitated after cardiac arrest where critical care is considered clinically appropriate.

Patients receiving Advanced Cardiovascular Support (cont)

- Continuous observation of cardiac output and derived indices (*e.g. pulmonary artery catheter, lithium dilution, pulse contour analyses, oesophageal doppler*).
- Intra aortic balloon pumping and other assist devices.
- Insertion of a temporary cardiac pacemaker (criteria valid for each day of therapeutic connection to a functioning external pacemaker unit).

References

1. Department of Health. Comprehensive Critical Care: a review of adult critical care services. Department of Health May 2000.
2. Intensive Care Society. Levels of Critical Care for Adult Patients 2002.
3. Critical Care Minimum Dataset.
4. NICE Guideline 50; Acutely Ill Patients in Hospital. Published 2007.
5. Acute Care Competency Framework: published by the Department of Health 2008.