

Joint Faculty of Intensive Care Medicine of Ireland

National Standards for Adult Critical
Care Services



ROYAL COLLEGE OF
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Intensive Care Society of Ireland

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National Standards for Adult Critical Care Services 2011

**Joint Faculty of Intensive Care Medicine of Ireland (JFICMI)
in association with
The Intensive Care Society of Ireland (ICSI)**

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1. Introduction

Critical Care Units provide life sustaining treatment for critically ill patients with acute organ dysfunction due to potentially reversible disease. It is the purpose of the Unit to support the patient's failing organs and diagnose and treat the underlying cause. Patients at risk of organ dysfunction due to chronic disease processes may also benefit from critical care in the peri-operative period or other temporary reversible circumstance e.g. after trauma.

A Critical Care Service comprises appropriately trained and accredited medical, nursing and allied health professionals based in a Critical Care Unit (see below), working within a quality and governance structure consistent with delivery of the best critical care while adhering to national and international best practice guidelines.

A Critical Care Service is appropriate for the care of patients requiring Level 2, 3, and 3(s) critical care (vide infra) generally delivered within a High Dependency (HDU) or Intensive Care Unit (ICU). For the purpose of this document, the term Critical Care Unit refers to HDU and ICU.

The governance and operational standards foster the ability to deliver high quality, safe patient care in a working environment conducive to best practice, including the right of patients to timely access to Intensive Care Medicine services as appropriate to clinical need. Timely access requires an appropriate configuration of critical care services and appropriate number of critical care beds operating at approximately 85% capacity, in keeping with recent analyses for the adult and paediatric critical care services in Ireland [1,2].

The recommendations herein represent the minimum recommended standards required in Ireland for a Critical Care Unit. These standards are not all-encompassing and it is accepted that these standards will evolve with the ever-changing dynamics of health care. It is recognized that many of the existing Critical Care Units do not fulfill these minimum requirements in terms of size, facilities or staffing but it is recommended that processes be put in place to achieve these standards over a fixed period of time and that new builds fulfill these standards.

2. Levels of Critical Care

Critical Care provides curative and life support treatment for the critically ill patient. The level of critical care is best defined by the patient clinical condition and his/her level of need for critical care.

Levels of care as determined by clinical need have been usefully defined by the Intensive Care Society (UK) 2009 [3] and the Welsh Assembly [4]. The College of Intensive Care Medicine of Australia and New Zealand include aspects of staffing and resourcing in the definition of Intensive Care [5,6], as does the European Society of Intensive Care Medicine (ESICM) [7]. The Society of Critical Care Medicine (SCCM) [8] also includes aspects of staffing, interventions and facility and recommends “that all hospitals determine the level of critical care services offered in keeping with their mission and goals as well as regional needs for this service”. All these reports and standards documents articulate the need for critical care to manage the right patients in the most suitable facility by an appropriately trained team of professionals.

In terms of the categorization of Critical Care Units, the JFICMI and ICSI recommend that the level of Critical Care is defined by the level of clinical care pertaining at the Critical Care Unit.

Acute Care	Level 0	Hospital ward clinical management
	Level 1	Higher level of observation eg. PACU
Critical Care	Level 2	Active management by critical care team to treat and support critically ill patients with primarily single organ failure
	Level 3	Active management by critical care team to treat and support critically ill patients with two or more organ failures
	Level 3 s	Level 3 with regional / national service

Critical Care encompasses both Intensive Care and High Dependency care. In practice, Level 2 is High Dependency (HDU) and Level 3 is Intensive Care (ICU) level of critical care. Regarding the operation of these levels of critical care facility, the JFICMI and ICSI recommend:

1. Hospitals should have a Critical Care service resourced to treat a number of co-existing organ failures if that hospital service admits acutely ill medical and surgical patients or provides specialist surgical, or other specialist services to patients at “high risk” of clinical deterioration.
2. All critically ill patients should be managed by a critical care service under one governance structure, appropriately resourced to provide that service. Guidelines towards the governance, resourcing, staffing and building guidelines are addressed elsewhere in this document.

3. Level 2 and Level 3 care may co-exist within one critical care facility. Local case-mix and strategic goals determine best configuration.
4. The size of a Critical Care Service cannot be ideally defined in terms of Unit bed numbers alone. This is better described in terms of the requirements of care for a given patient dependency. For maintenance of skills and professional competencies, a Critical Care Service Unit will likely be treating at least 200 Level 3 patients per annum and therefore likely to entail Critical Care Units of 6 beds or more [1,4].
5. An appropriately resourced and staffed critical care service should be able to provide comprehensive critical care. Transfer to a Level 3(S) critical care service may be required for specific Intensive Care Medicine or other regional or national specialty service.
6. Critical Care retrieval (critical care patient transport service) is an integral part of a comprehensive Critical Care service.

3. Guidelines for Admission to Critical Care Levels

These guidelines cannot be exhaustive nor be able to address all potential clinical circumstances. They are provided as a guide to assist in the interpretation of levels of critical care. Clinical expertise and judgment is required in all circumstances to ensure the best care is provided in the most appropriate facility.

3.1 Level 0 and Level 1 Criteria

Patients described by the above levels of acuity of illness do not require management in a Critical Care Unit. Where concern arises related to acute clinical deterioration, the advice of the critical care team is advised.

Where the only requirement is Non Invasive Ventilation (NIV), suitable facility may include a designated resourced NIV ward within for example a respiratory service, Coronary Care Unit, or other Acute Care Unit, as determined by the clinical context and expert clinical judgment. Where such therapies can be delivered via tracheostomy, local training and guidelines are required to support such therapies in a Level 1 environment.

3.2 Level 2 Criteria

Appropriate clinical judgment will determine the best environment for the care of a patient meeting Level 2 criteria. Where the only requirement as defined for Level 2 is one of increased frequency of monitoring, this may be provided in the same environment as for Level 1 patients. Such facility may include a suitably resourced observation ward or PACU.

Complex NIV may require Level 2 care - for example as part of a process of weaning to Level 1 care, or where higher levels of NIV are required and progression to invasive mechanical ventilation a clinical concern.

Haemodynamically unstable patients requiring invasive cardiovascular monitoring, frequent fluid challenge therapy, management of hypovolaemia, vasoactive drug infusion therapy, antiarrhythmic infusions etc are likely to require therapy in a Critical Care Unit as determined by the clinical context and clinical judgment. Where instability is related to primary cardiac disease (e.g. AMI etc), such management within a Coronary Care Unit may be more appropriate.

Renal replacement therapy is normally managed in a dialysis facility but may require critical care in the context of other organ failures.

Neurological therapy requiring protection of the airway, invasive neurological monitoring, continuous ongoing infusion for seizure management or therapeutic hypothermia requires management in a Critical Care Unit. Clinical assessment will determine whether this is required at Level 2 or Level 3.

Dermatological injury involving major skin loss, major soft tissue injury, or extensive burns requires management in a Critical Care Unit. A dedicated appropriately resourced Burns Units may be suitable.

Hepatic Support: Where concern arises related to acute clinical deterioration, the advice of the critical care team is advised.

3.3 Level 3 Criteria

Management of two organ failures or greater.
Invasive mechanical ventilatory treatment is a Level 3 treatment.

3.4 Level 3S Criteria

Level 3 criteria within a defined national or regional specialty service (e.g. Extra Corporeal Life Support (ECMO / ECLS), Neuro Critical Care, Cardiothoracic, Transplantation etc).

4. Clinical Governance

1. All Critical Care Units should have a Medical Director (Director of Critical Care Medicine), with clearly defined administrative time to perform that function, which allows both time to manage the Unit and time to engage with the hospital clinical and administrative leadership to ensure optimal use of critical care resource.
2. The Medical Director will lead critical care services across the hospital, including steering critical care policy, strategy and operational activities and audit.
3. The Medical Director will provide overall management and leadership; ensuring that the Unit is compliant with national and international best practice.
4. The role of the Medical Director of Critical Care Medicine should be recognized by the hospital Clinical Director and be clearly identified within the hospital directorate or equivalent structure.
5. The reporting relationship of the Medical Director of Critical Care shall be determined by local hospital governance structures but shall include the Clinical Director, Chief Executive or equivalent.
6. The Medical Director of the Critical Care Unit should either be a Fellow of the Joint Faculty of Intensive Care Medicine of Ireland or hold an equivalent qualification (cf. Articles of Association JFICMI Section 6).
7. The Unit shall have agreed admission and discharge policies.
8. Patients referred for critical care management will be assessed by the critical care clinical team and the decision, to admit, retrieve, transfer or to leave management with the referring team, will be decided by the critical care team in conjunction with the referring team.
9. Quality of patient care and outcomes require support from a clinical audit and benchmarking process. It is the responsibility of the hospital and the healthcare region which the Critical Care Unit serves to invest in the appropriate hardware, software, and staffing to support clinical audit.
10. The Units need to have clinical incident reporting, identified key performance indicators and a mechanism for analysis, feedback and operational change.

11. The Medical Director of the Unit(s) shall work in close collaboration with an appointed senior Clinical Nurse Manager, Assistant Director of Nursing, or equivalent dedicated to the Unit(s).
12. The Medical Director of Critical Care or designate shall engage with relevant hospital committees with specific relevance to the operations of an Intensive Care Unit – e.g. Infection Control committee, Haemovigilance committee, Drugs and Therapeutics committee and/or others as identified within the context of that Intensive Care clinical practice.
13. The Unit shall adhere to National Standards for Infection Control, Quality Assurance and other defined standards and guidelines which may impact on best care for the critically ill.
14. A continuing education programme is required to ensure staff competencies with rapidly evolving critical care therapies. It should be compliant with the requirements for training, accreditation and maintenance of professional skills of all critical care professionals. A Supervisor of Education & Training may be appointed / nominated to oversee this programme.
15. Nursing management should consist of a Clinical Nurse Manager who runs the Unit for each shift and does not have direct individual patient clinical responsibilities during that shift; reporting to a Clinical Nurse Lead with overall responsibility for nursing in the Unit. The Clinical Nurse lead will, in turn report to the Divisional Nurse Manager or otherwise as relevant to local hospital structures. The Clinical Nurse lead has a defined management role and function, leads the nursing team in the Unit, supervises their education and training and in conjunction with the Medical Director and the multidisciplinary team, shapes the clinical direction of the Unit.

5. The Intensive Care Unit – Minimum Requirements

The design of an Intensive Care Unit for any hospital must address:-

- Infrastructure and building standards
- Floor plan
- Accessibility – the right number of beds for case-mix and referral base
- Patient focus
- Ergonomic working environment
- Infection Control standards
- Patient Dignity
- Family and next-of-kin
- Hub accessibility within the hospital to and from all inter-dependent services
- Integration within hospital systems – e.g. Information Technology etc

Such design is open to change as new concepts and processes evolve. Infection Control standards need to be adhered to, with particular reference to the numbers of single rooms, neutral pressure rooms and airborne isolation rooms. The specialty case mix will help determine the numbers of airborne isolation rooms.

Design and building standards and infection control standards as referenced below are subject to revision and up-dating. The HBN 57 [9] and SARI guidelines [10] are appropriate for 2010 and the most recent versions should be considered the standard of the day.

6. Staffing

6.1 Medical Staffing

Every Critical Care Unit should have 24 hour availability of a dedicated Consultant in Critical Care Medicine who has exclusive sessional commitment to Intensive Care Medicine (ICM) and no conflicting clinical commitment for that period.

It is desirable that consultant sessions be provided by a specialist who is a Fellow of the Joint College of Intensive Care Medicine of Ireland, or trained to a level that allows accreditation by JFICMI. Much of this care is currently provided by consultants in Anaesthesia whose training and experience in Critical Care Medicine was achieved prior to such accreditation being widespread and upon whose continued practice the patient care and specialty remains dependant. New appointments should fulfill the accreditation criteria of Consultant with an Interest in Intensive Care Medicine or Consultant in Intensive Care Medicine.

At least one such specialist should be rostered to the Critical Care Unit at all times, predominantly present in the Unit during normal working hours, available by phone at all times and at all times available to the Unit in a timely manner.

The Critical Care medical team comprises the Intensive Care specialist(s) supported by appropriately trained (or in training) non consultant hospital doctors.

Although rotas may vary depending on Unit size, number of consultants, number of junior staff, length of shifts etc, the rotas of lead consultants should be organised so as to maximise continuity of patient care. It is desirable to provide for blocks of Critical Care Unit time for each consultant of at least 3-4 days at a time rather than changing on a daily basis.

The duties of the Intensive Care specialist include:

- Providing Critical Care for the ICU patients.
- Assuming overall responsibility, in conjunction with the admitting clinician, for the patients in the Critical Care Unit.
- Being available to medical colleagues for consultation and liaison regarding patient care including potential patients who may be referred from within the hospital or from a related health-care facility.
- Maintenance of continuing professional development in accordance with the criteria specified by the JFICMI.

- Liaison with and regular communication with patients, their families and next of kin.
- Supervision of transport of the critically patient.
- Supervision and training of trainee medical staff and students in the Critical Care Unit.
- Supporting education and research within the Unit.
- Optimizing allocation of Critical Care resource based on hospital / Intensive Care prioritization of access guidelines.
- Unit management
- Achieving Quality initiative and key performance indicator goals.
- Dealing with management issues e.g. relating to patient safety issues in conjunction with hospital administration.
- Advice to hospital management and other bodies outside the hospital (e.g. professional and regulatory bodies) on clinical and other matters relating to Critical Care and on planning priorities.

Staff rostering and responsibilities

There should be one non-consultant hospital doctor (NCHD) for each six to eight critical care patients, depending on local case-mix, adhering to Standards for Training in Intensive Care Medicine, JFICMI. Out of hours staffing of the Critical Care Unit should be provided, at a minimum, by an experienced non-consultant hospital doctor appointed to the Critical Care team. The ratio of NCHD to patients out of hours will be determined by local case mix and activity, but should not exceed one NCHD to every twelve patients. Critical Care registrar(s) should not have any concurrent responsibilities and on-call accommodation should be provided in, or appropriately close to the Unit.

The consultant to patient ratio should be a minimum one consultant to twelve critical care patients during routine hours. This may increase to a minimum of one consultant to thirty critical care patients out-of-hours, depending on case mix and where supported by appropriate trainee and NCHD staffing.

A separate layer of medical staffing will be required where significant periods of time required outside of critical care (e.g. Outreach commitment) such as assessing acute referrals and inter and intra-hospital transport.

Multi-disciplinary access and input to critical care is essential, with particular need for Consultants in Microbiology / Infectious Disease, Interventional Radiology, most Acute Medicine and Acute Surgical Specialties other than those identified and resourced as national or regional specialties.

6.2 Nursing Staffing

Role of the Critical Care Nurse

Critical Care Nursing represents a distinct body of knowledge that can be taught, with defined accreditation standards and postgraduate awards at the level of Certification, Diploma and Degree in Critical Care Nursing and a higher masters qualification.

It is advised that critically ill patients are cared for by nurses with this knowledge base who will support and co-ordinate the patient's treatment plan. Guidelines recently published suggest that at least 50% of nurses in training ICUs should have worked in Intensive Care for greater than 2 years or be trained and certified in Intensive Care nursing. Guidelines are currently under review for Ireland. In the interim, appropriate guidance can be informed by the publications from the British Association of Critical Care Nurses [11] and the Royal College of Nursing Guidance for nurse staffing on Critical Care, Feb 2003.[12]

Although these standards are defined for adult critical care services, established practice in Ireland includes management of some paediatric cases in a number of adult critical care units. Guidelines for nursing in this environment would include "The paediatric intensive care society Standards for the Care of Critically Ill Children, 4th edition, June 2010, UK" [13].

It is the understanding of the JFICMI that a new working group has been established with the HSE and critical care nursing to advise regarding suitable guidelines for Ireland.

6.3 Health Care Assistants

Further review of nursing practices will serve additionally to facilitate development of Health Care Assistants with specific skill-mix pertinent to Critical Care.

Minimal standards relating to Health Care Assistants in Critical Care include:

- A training programme for Health Care Assistants delivered to FETAC Level 5 Health Care Support Certification, must include a specific module for Critical Care.
- Target numbers for health care assistants who will complete the FETAC module should be determined and reviewed regularly.
- Resources should be allocated to support time and costs associated with maintenance of professional competencies, continuous professional development and quality assurance activities.

6.4 Support Staff

- In order to maximise and appropriately deploy nursing and non-nursing staff, sufficient non-clinical support staff must be provided to carry out non-clinical support duties. These would include general administration, secretarial support (1:12 secretarial:patient ratio), research, domestic duties, housekeeping, portering.
- Support staff are required to ensure robust data collection and audit.
- Appropriate critical care specific training for non-clinical support staff is required.

6.5 Allied Health Professionals

Critically ill patients and a critical care service requires the attendance of specific Allied Health Professionals:

Physiotherapy

Specialist physiotherapy is required for the majority of critically ill patients. The exact ratio of physiotherapists to patients will depend on local case mix, but a ratio of one physiotherapist to every twelve Intensive Care patients would be considered a guideline.

Clinical Nutrition

A Clinical Nutrition service should be available during routine working hours.

Pharmacy

The complexity of prescribing, administration and associated cost requires that a specialist pharmacist with a specific interest and training in critical care be appointed to support a seven day per week pharmacy service. International standards support a 0.05-0.1 WTE pharmacist per patient.

Speech and Language Therapy

A Speech and Language Therapy service should be available during routine working hours.

Occupational Therapy

An Occupational Therapy service should be available during routine working hours.

Social work

A Social Work service should be available during routine working hours.

Pastoral Care

A Pastoral Care service should be available 24 hours per day consistent with the needs of the multi-cultural nature of our society.

The majority of critical care admissions should progress to survival and hospital discharge. Where survival is not possible despite optimal care, it is equally important to ensure best care of the dying patient with a focus on dignity, respect, and comfort. All Critical Care Units should aim to provide for the next-of-kin requirements also in these circumstances, with provision of as much privacy as is possible within a busy critical care environment and making available private interview and family rooms.

Clinical Engineering

Every Critical Care Unit requires the support of the hospital Clinical Engineering Department. There should be a dedicated critical care clinical engineering service, 24hrs per day, 7 days per week, with the specific knowledge and skills to support the complexity of such critical care services. Such specialist personnel

need to be immediately available during working hours and available on-call out-of-hours.

Resources should be allocated to support time and costs associated with maintenance of professional competencies, continuous professional development and quality assurance activities.

7. Outcome / Conclusion

Critical Care is an expensive and finite resource for the care of critically ill patients with an underlying reversible component to acute or chronic disease.

Ensuring best outcomes includes appropriate benchmarking, both as an internal audit and via a national audit and case mix adjusted bench-marking system.

These guidelines act to advise regarding best current international practice and have been informed by similar Standards guidelines as referenced below.

8. References

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