



**NEW ZEALAND
STANDARDS
IN
CRITICAL CARE
NURSING
EDUCATION**

4th Edition 2010

NEW ZEALAND STANDARDS
FOR
CRITICAL CARE
NURSING EDUCATION

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INTRODUCTION

The Critical Care Nursing Education Standards are aimed at developing the nurse from competent to a proficient level of nursing practice (Benner, 1984). It is expected that a critical care orientation programme develops the nurse from novice to advanced beginner, and ongoing education and clinical experience develops the nurse to be practising at competent level on any PDRP. These standards reflect, and are consistent with, the Critical Care Nurses' Section Position Statement (2010) on the Definition of Critical Care Nursing and the Critical Care Nurses' Section Position Statement (2010) on the Provision of Critical Care Nursing Education. (Refer Appendix 1 and 2).

The standards are designed to meet all the requirements of a specialty nursing practice programme as outlined in the Nursing Council framework, or as part of a clinical component of an advanced nursing practice programme. It is expected all critical care specialty and advanced practice programmes meet the standards outlined in this document.

The Critical Care Nursing Education Standards provide the framework for curriculum development and student evaluation. These standards are a minimum requirement and must be met. In addition, the minimal standards can be expanded to reflect the needs of the regional critical care population group. These standards are applicable for general and paediatric critical care nursing.

It is accepted that some critical care units have few invasive ventilated patients. It is expected that the nurse, on completion of the specialty practice programme can demonstrate proficiency in caring for an invasive ventilated patient. Critical care nursing practice embraces the critically ill patient and those close to them, the critical care nurse, and the environment in which critical care nursing is provided. The aim of the critical care specialty practice programme is to provide physiological and evidence based knowledge to enable the nurse to critically reflect on practice to provide a high standard of:

- patient assessment,
- professional judgement, and
- timely and effective patient management.

This is achieved through completion of the theoretical and practicum component. There is an expectation that critical care nurses are well developed in Registered Nurse competencies which include:

- Demonstrates a sound ethical and professional basis for their practice.
- Acts within legal boundaries i.e. works within the New Zealand Nursing Council's defined scope of practice, competencies for practice, good documentation practices, guidelines for direction and delegation, and codes of conduct.
- Provides health education appropriate to the needs of the critical care patient/families and significant others.
- Communicates effectively with patients/family and members of the healthcare team

STANDARD ONE

Nursing education is provided and managed by appropriately qualified staff.

The standard is being met when:

Co-ordination of the programme is the combined responsibility of an academic and clinical co-ordinator.

The academic co-ordinator has a relevant tertiary qualification.

The clinical co-ordinator of the programme:

- a. Is a registered nurse or nurse practitioner.
- b. Is a qualified critical care nurse.
- c. Has a relevant clinical tertiary qualification.
- d. Has current clinical experience in the critical care setting.
- e. Shows evidence of relevant ongoing professional development in the critical care area.
- f. Has current evidence based practice knowledge in the subject they are teaching.
- g. Demonstrates formal and informal teaching skills and curriculum development.
- h. Demonstrates professional networking within the national critical care nurses section.

STANDARD TWO

Entry requirements for nursing programmes are explicit, fair and equitable.

The standard is being met when the nurse entering the programme:

Is a Registered Nurse.

Has fully completed a critical care orientation programme.

Critical care clinical knowledge and experience reflects the critical care competent level on the PDRP.

The nurse entering the programme demonstrates pre-requisite specialty clinical knowledge in their clinical practice as assessed by the nurse manager or his/her delegate. (Refer appendix 3).

STANDARD THREE

The curriculum is developed collaboratively and directed towards providing the clinical/educational/professional preparation to be a qualified critical care nurse.

The standard is being met when:

Partnership with an accredited tertiary education institution or tertiary unit ensures:

- a. The curriculum is clinically appropriate and meets the requirements of this standard.
- b. There is adequate access to resources including:
 - Library
 - Current Specialist education knowledge
 - Curriculum framework development
 - Formal education
 - Moderation of programme
 - Internet access
 - Clinical mentor support provided by a qualified critical care nurse

The curriculum framework, including defined objectives of the programme, are documented.

Aims/objectives, teaching methods, content assessment criteria and direction of the programme, are clearly documented.

The curriculum is previewed by the clinical coordinator of the programme to ensure clinical development is met.

The programme is evaluated annually by the academic and clinical coordinator/ nursing unit manager and programme participants.

STANDARD FOUR

The opportunity to gain clinical competence in the areas covered by the programme is provided in the programme.

The standard is being met when:

The nurse completes a minimum of 600 hours working clinically in the critical care area for the duration of the programme. These hours are confirmed by the participant's nurse manager.

The clinical competence of the nurse is regularly assessed by a clinical mentor.

Practical reinforcement of the programme's theoretical knowledge is provided by the practicum component.

STANDARD FIVE

Nurses are assessed throughout and on completion of the programme to ensure that learning outcomes have been achieved.

The standard is being met when:

Clinical competencies are developed by qualified critical care nurses.

Course participants are assessed by qualified critical care nurses who are their clinical mentors.

Academic and clinical mentors are responsible for ensuring the clinical assessment criteria are met.

The nurse's theoretical knowledge, practical competence, and clinical hours are assessed and endorsed before completion of the programme.

The programme demonstrates academic/clinical assessment criteria.

Assessment criteria may include:

- exams
- tests
- exemplars
- case studies
- assignments
- teaching presentations
- research
- OSCE (oral structured clinical exam)
- clinical audit

On completion of the programme, the nurse receives evidence that the paper requirements have been met.

STANDARD SIX

Theoretical content is offered to provide the nurse with knowledge to assess, plan, manage, document and critically analyse the care of the critically ill patient and family, as appropriate to patients commonly encountered within the clinical setting.

The standard is being met when the:

Core theoretical content is provided. (Refer appendix 4).

Weighting of theoretical and practicum content reflects the needs of the critical care population group of the participants enrolled in the paper.

Nurse assesses, plans, manages, documents and critically analyses nursing care for patients with impaired systems function.

Nurse demonstrates knowledge in relation to Te Tiriti o Waitangi and the impact of services on the delivery of nursing care for Maori and Maori Health

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APPENDIX 1: CRITICAL CARE NURSE'S SECTION POSITION STATEMENT (2009) ON THE DEFINITION OF CRITICAL CARE NURSING

Background

Intensive and high dependency care in New Zealand has historically been incorporated under the concept of critical care. As the hospital patient population have become more complex, there is an increasing interest in providing high dependent care within a high dependency care unit. The national critical care nursing standards reflect the different standard requirements for both intensive and high dependency care units.

Purpose

The aim of this position statement is to define critical care nursing, intensive care and high dependency care unit. This paper also reflects the need for both intensive and high dependency care units to comply with all the Critical Care Nurses' Section national standards and position statements.

The following definition statements have been agreed and supported by the Critical Care Nurses Section (CCNS).

- Critical care nursing is defined by the Critical Care Nurses Section as:
Critical care nursing is the provision of nursing care for patients and their families within critical care, intensive care, combined intensive/high dependency/coronary care, or high dependency care units (CCNS, 2002).
- An Intensive Care Unit (ICU) is defined by the Intensive Care Clinical Advisory Group (2005) is:

A specially staffed and equipped, separate and self-contained section of a hospital for the management of patients with life threatening or potentially life-threatening conditions. Such conditions should be compatible with recovery and have the potential for an acceptable future quality of life. An ICU provides special expertise and facilities for the support of vital functions, and utilises the skills of medical nursing and other staff experienced in the management of these problems

- Intensive care units, whether being Level 1, 2, or 3, comply with the Joint Faculty of Intensive Medicine (1997) standards.
- A High Dependency Unit (HDU) is defined by the Intensive Care Clinical Advisory Group (2005) is:

A discrete unit within a hospital, able to supply critical care expertise at less intensive resource levels, providing a level of care that falls between the general ward level and the Intensive Care Unit. A high dependency unit should be able to provide monitoring and support to patients [but] should not manage patients requiring multiple organ support or mechanical ventilation.

- Smaller hospitals which have developed self-described HDUs that are

occasionally required to provide ventilation or other advanced support should comply with the standards for Level 1 units (Intensive Care Advisory Group, 2005).

- Hospitals that have developed separate, subspecialty, high dependency areas or central, dedicated HDUs, whatever their nature and purpose, must have a defined relationship with, and ready access to, the expertise and resources of an ICU via a mutually agreed access policy (Intensive Care Advisory Group, 2005).

Outcome

Both the intensive care and high care dependency units will comply with the Critical Care Nurses' Section national standards and position statements.

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APPENDIX 2: CRITICAL CARE NURSE'S SECTION POSITION STATEMENT (2010) ON THE PROVISION OF CRITICAL CARE NURSING EDUCATION

The Critical Care Nurses' Section (CCNS) considers educational preparation is essential in developing qualified critical care nurses. A qualified critical care nurse demonstrates ability to: integrate comprehensive patient assessment and interpretative skills to achieve optimal patient care; manage therapeutic interventions and regimes; evaluate and respond effectively to rapidly changing situations; and manage a plan of care to achieve optimal patient outcome and consider implications for discharge (Aari, 2008; Bench, 2003).

Using the novice to expert framework (Benner, 1984), the New Zealand Standards in Critical Care Nursing Education (CCNS, 2010) develop the critical care nurse from competent to proficient level of practice within the critical care specialty (CNNS, 2010).

Following concerns related to poor clinical outcomes from some post graduate certificate level critical care education programmes, the national CCNS established an education working party firstly, to identify the depth of the problem and secondly, to recommend strategies to resolve this problem (CCNS, 2007; Pirret, 2007).

Although both critical care nursing and organisational standards outline the minimum numbers of qualified critical care nurses (Australian Council of Health Care Standards, 1997; Morley, 2005), there has been no definition of a qualified critical care nurse.

This position statement was developed following recommendations from the Education Working Party (CCNS, 2007) and consultation with CCNS members. Where possible these recommendations are based on best critical care nursing evidence. In areas where current research-based evidence is not available, these recommendations are based on the opinion of expert critical care nurses in New Zealand.

1. A qualified critical care nurse is defined as:

A nurse who has completed a specialty practice post registration programme that meets the New Zealand Standards for Critical Care Nursing Education (2010)

or

A nurse who has successfully completed another critical care nursing programme and is able to provide evidence of continued professional development reflecting their theoretical knowledge and clinical expertise is at the standard outlined in the New Zealand Standards for Critical Care Nursing Education (2010).

2. All critical care specialty practice post registration programmes meet the *New Zealand Standards of Critical Care Nursing Education (CCNS, 2010)*

3. All critical care specialty practice post registration programmes are tertiary level 7 or level 8 programmes.
4. Post graduate critical care programmes with a focus on critical care nursing, whether it be post graduate certificate, diploma or masters, include the theoretical content as outlined in the *New Zealand Standards of Critical Care Nursing Education* (CCNS, 2010), and a practicum content with a focus on application of theory into practice and clinical competency assessment.
5. Nurses graduating from a critical care specialty post registration programmes demonstrate competencies of a qualified critical care nurse, thus reflecting proficient level of practice within the critical care specialty.
6. Nursing Council of New Zealand utilise appropriate critical care programme assessors that have been endorsed by the national CCNS to assess critical care programme compliance to the *New Zealand Standards of Critical Care Nursing Education (2010)*.
7. Nurses exiting short courses with a focus on critical care are provided with a transcript outlining course hours and theoretical content.

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APPENDIX 3: PREREQUISITES THEORETICAL CONTENT

Prerequisite Pulmonary Content

- Anatomy of respiratory system.
- Signs and symptoms of hypoxemia/hypercapnoea.
- Exposure to and basic understanding of blood gas analysis
- Demonstrates use of advanced knowledge in airway management including assessment, suctioning, positioning and chest care, having a working knowledge of:
 - The signs and symptoms of respiratory obstruction and the means by which the obstruction can be corrected.
 - Varying types of airways, their clinical use and complications. This will include:
 - E/T tubes including double lumen
 - tracheostomy
 - cricothyroidectomy
 - laryngeal mask
 - the indications and procedure for intubation/tracheostomy (conventional, . surgical or percutaneous) and be skilled in all aspects of nursing management of the critically ill patient with an artificial airway
 - the complications of ordinary/rapid sequence intubation/tracheostomy and induction
 - coughing/assisted coughing, vibration and percussion in consultation with physiotherapist and in accordance with local policy
- The modes, settings and safety features of ventilators used, appropriate to the individual patient.
- Able to care for a stable invasive ventilated patient.

Prerequisite Cardiovascular Content

- Anatomy of the heart.
- The basics of the cardiac cycle.
- The major blood vessels.

- Fluid and electrolyte balance including common electrolyte imbalances.
- Recognition of normal sinus rhythm and life threatening dysrhythmias.

Prerequisite Neurological Content

- Neurological assessment using the Glasgow Coma Score.
- The pathophysiology of pain and the pharmacological and nonpharmacological interventions associated with effective pain/sedation management

Prerequisite Gastrointestinal Content

- Anatomy of the alimentary system.

APPENDIX 4: CORE THEORETICAL CONTENT

There is an expectation, on completion of the critical care speciality programme, that the academic institution provides evidence that the following theoretical content has been provided:

Core Content: One: Pulmonary System

- **Control of ventilation**, including respiratory centres, central, and peripheral chemoreceptors, and mechanoreceptors.
- **Mechanics of breathing including:**
 - lung volumes/ capacities
 - compliance and airway resistance
 - alveolar ventilation
 - dead space
- **Oxygen delivery to include:**
 - pressure gradients including Aa gradient
 - oxygen and carbon dioxide transport
 - oxyhaemoglobin dissociation curve
 - oxygen extraction
 - oxygen consumption
- **Causes of hypoxemia to include:**
 - hypoventilation
 - reduced capillary transient time
 - V-Q mismatch
- **Hypoxic Drive**
- **Respiratory assessment analysis to identify problems to include:**
 - inspection
 - auscultation
 - pulse oximetry
 - blood gas results
 - end tidal CO₂ monitoring
 - interpretation of chest x-rays
- **Principles of evaluating chest x-rays including:**
 - Correct placement of tubes and lines
 - X-ray changes indicating pulmonary conditions such as pneumonia/ consolidation, atelectasis, pulmonary oedema, pleural effusions.

- **The problems associated with respiratory failure, recognising the cause, signs and symptoms and the appropriate treatment including:**
 - Different methods of oxygen delivery devices.
 - Complications of oxygen delivery.
- **Ventilatory support:**
 - The physiological effects of positive pressure ventilation.
 - The principles of weaning.
 - Evidence based ventilation strategies for the ventilated patient population i.e. (ARDS, ALI).
 - Evidence based approach to the care of the ventilated patient.
 - Psychological management of the ventilated patient.

Core Content Two: Cardiovascular System

- **Cardiac physiology including:**
 - Circulation and control of the cardiovascular system including central control receptors, the nerve impulses and pathways and the terms:
 - Cardiac output/index
 - Systemic Vascular Resistance
 - Stroke volume
 - Starling's law
 - Systole
 - Contractility
 - Preload
 - After load
- **The composition and maintenance of fluid balance including osmotic, oncotic and hydrostatic pressures.**
- **Haemodynamic of blood pressure including:**
 - Arterial pressures
 - Cardiac/Output/Index
 - Pulmonary artery pressure
 - Pharmacological therapies and fluids used to maximise tissue perfusion including:
 - *Inotropes*
 - *Vasopressors*
 - *Vasodilators*
- **The pathophysiology and medical/nursing management of a patient with the following:**
 - Cardiac failure – ACS, Congestive Cardiac Failure
 - Cardiogenic shock

- Hypovolaemic shock
- SIRS sepsis/ septic shock

- **Interpretation of a 12-lead ECG including**
 - Electrical activity of the heart.
 - Ischaemic and infarction patterns.

- **Dysrhythmias and management of:**
 - sinus tachycardia
 - sinus bradycardia
 - premature contractions
 - atrial flutter
 - atrial fibrillation
 - heart block and bundle branch blocks.
 - Pulseless Electrical Activity.
 - ventricular tachycardia.
 - ventricular fibrillation.
 - asystole.

- **How to perform synchronised cardioversion and pacing.**

- **Evidence based strategies in care of the cardiac compromised patient.**

Core Content Three: Neurological

- **Neurological concepts including:**
 - Monro-Kellie hypothesis
 - Intracranial pressure
 - Cerebral perfusion pressure/ auto regulation
 - Blood brain barrier

- **Neurological conditions and management of:**
 - Traumatic brain injury
 - Intra and extra cerebral haemorrhages
 - Seizures
 - Brain death.
 - Guillian Barre`

- **Requirements and process pertaining to organ donations.**

- **Sedation and pain management strategies.**

Core Content Four: Renal System

- **Functional renal anatomy and physiology.**
- **Causative factors, types, and diagnosis and management of renal failure to include pre, intra, post acute renal failure and chronic kidney disease.**
- **Pharmacology used in patients with impaired renal function e.g. frusemide.**
- **Principles and management of dialysis modalities.**

Core Content Five: Endocrine System

- **Pathophysiology and management of:**
 - Diabetic ketoacidosis
 - Hyperosmolar non-ketotic state.
 - Pancreatitis.
 - Glycaemic control related to hyper metabolism

Core Content Six: Gastrointestinal System

- **Physiologic response to hypermetabolism and starvation.**
- **Management of nutritional status.**
- **Evidence based strategies of the gut including absorption, protection, and elimination.**
- **Evidence based practice pertaining to enteral and parenteral feeding.**

Core Content Seven: Trauma

- **Management of chest trauma.**
- **Management of abdominal trauma.**
- **Acute spinal cord injury management including neurogenic shock.**
- **Abdominal compartment syndrome.**
- **The metabolic response to burns.**

- **The nursing/medical management of the patient with significant burns to include:**
 - Current trends in skin coverage
 - Fluid and electrolyte replacement
 - infection control measures
 - Nutritional requirements
 - Airway burns and effects of smoke inhalation
 - Temperature control

Core Content Eight: Paediatric

- **Developmental anatomy and physiology of the respiratory, cardiovascular, neurological, renal, endocrine, gastrointestinal and haematology/immunology systems.**
- **The psychosocial requirements of the child and family.**
- **Clinical assessment of the critically ill infant and child including modified and specific assessment tools. E.g GCS, FLACC pain score.**
- **Paediatric fluid and electrolyte requirements.**
- **Paediatric nutritional requirements including breast milk vs bottle.**
- **Non-accidental injuries**
- **The pathophysiology, treatment of common paediatric respiratory conditions e.g. croup, foreign body, aspiration, bronchiolitis, and pneumonia.**
- **Approach to management of the collapsed infant/child.**

Core Content Nine: Psychosocial

- **Diagnosis and management of psychosis/ delirium.**
 - **Care of the long-term patient.**
 - **Death, dying and withdrawal of treatment**
 - **ICU environment and the effect on families**
-