

## 2005

*This document applies to those who begin training on or after July 1<sup>st</sup>, 2005.*

(Please see also the "Policies and Procedures.")

### **DEFINITION**

Critical care medicine is a multidisciplinary field concerned with patients who have sustained, or are at risk of sustaining life threatening, single or multiple organ system failure due to disease or injury. Critical care medicine seeks to provide for the needs of these patients through immediate and continuous observation and intervention so as to restore health and prevent complications. A specialist in adult critical care medicine is a physician or surgeon who is competent in all aspects of recognizing and managing acutely ill adult patients with single or multiple organ system failure requiring ongoing monitoring and support.

### **GOALS**

The rapidly expanding body of knowledge regarding the treatment of the critically ill, the continuing introduction of new technology for life support, and more complex societal issues (legal, moral, ethical) have created a need for specialists trained in the recognition and management of this patient subset. To develop such specialists individual residency programs must focus on the knowledge, skills, and attitudes pertinent to the expected roles and competencies of the adult critical care medicine specialist.

Residents training within the unique interactive environment in which the critically ill are managed must respect the rights of the patient and family and acknowledge the importance of age, gender, culture, and ethnicity.

### **ADULT CRITICAL CARE MEDICINE COMPETENCIES**

At the completion of training, the resident will have acquired the following competencies and will function effectively as a:

#### **Medical Expert/Clinical Decision-Maker**

##### *General Requirements:*

The adult critical care medicine must demonstrate:

1. Demonstrate diagnostic and therapeutic skills for ethical and effective interventions at the individual, group, organization and population levels.

## OBJECTIVES OF TRAINING IN ADULT CRITICAL CARE MEDICINE (2005)

2. Access and apply relevant information to the practice of Community Medicine.
3. Demonstrate effective consultation services with respect to assessment and interventions at the individual, group and population levels.

### *Specific Requirements:*

The adult critical care medicine resident will:

1. demonstrate a detailed knowledge of the generalist and specialist aspects of critical illness
2. demonstrate competencies in the safe application of equipment, careful monitoring, judicious use of drugs, and the coordinated provision of multidisciplinary care for effective organ system support
3. demonstrate an ability to recognize, resuscitate, and stabilize patients sustaining, or at risk of, cardiopulmonary arrest or other life-threatening disturbances
4. demonstrate a working knowledge of applied clinical physiology and homeostasis and the ability to recognize, prevent, and treat single or multiple organ failure
5. demonstrate a basic understanding of physiology, pathophysiology, and pharmacology as they pertain to the critically ill patient
6. demonstrate both basic and applied knowledge of the following dysfunctions, as outlined below:

#### 6.1. *Respiratory Dysfunction*

- 6.1.1. The ability to determine the presence of respiratory failure, provide for its emergency support, and have a plan of action to subsequently investigate and manage problems.
- 6.1.2. Demonstrate knowledge of:
  - 6.1.2.1. normal anatomy of the respiratory system
  - 6.1.2.2. physiology of the gas exchange unit, lung and chest wall mechanics, airway dynamics
  - 6.1.2.3. chest imaging of the ICU patient
  - 6.1.2.4. the control of respiration
  - 6.1.2.5. pathophysiology of disease states leading to respiratory failure
  - 6.1.2.6. principles and theory of mechanical ventilation and other methods of respiratory support
  - 6.1.2.7. respiratory problems and their management following surgical interventions

#### 6.2. *Cardiovascular Dysfunction*

- 6.2.1. The ability to recognize the problem, provide emergency life support, and embark upon a diagnostic and management program.
- 6.2.2. Demonstrate knowledge of:
  - 6.2.2.1. the methods and application of "Advanced Cardiac Life Support" techniques
  - 6.2.2.2. the principles of invasive and non-invasive hemodynamic monitoring
  - 6.2.2.3. the pathophysiology and treatment of cardiac failure, including the pharmacology of drugs used to treat these entities
  - 6.2.2.4. basic and complex cardiac arrhythmias, including pharmacological and electrical management
  - 6.2.2.5. shock syndromes, with emphasis on the pathophysiological events leading to and resulting from the shock state
  - 6.2.2.6. heart-lung interactions

- 6.2.2.7. surgical interventions in patients with cardiac disease, including perioperative management of the cardiovascular surgery patient
- 6.2.2.8. acute valvular heart disease
- 6.2.2.9. acute coronary syndromes
- 6.2.2.10. acute disease of the walls of large arteries (including dissection) and venous occlusive disorders
- 6.2.2.11. hypertensive emergencies

### 6.3. *Neurological Dysfunction*

- 6.3.1 The ability to recognize problems in a patient with a central nervous system (CNS) crisis and/or an altered level of consciousness, institute immediate life-sustaining measures, carry out appropriate neurological examination, derive a differential diagnosis, and continue with appropriate diagnostic and supportive measures.
- 6.3.2 Demonstrate knowledge of:
  - 6.3.2.1 the toxic, metabolic, structural, and infectious causes of altered consciousness
  - 6.3.2.2 intracranial hypertension (pathophysiology, investigation, monitoring techniques, treatment)
  - 6.3.2.3 status epilepticus (pathophysiology, investigation, systemic metabolic consequences, pharmacological management)
  - 6.3.2.4 the clinical diagnosis of brain death and confirmatory investigations involved
  - 6.3.2.5 the environmental and drug-related psychopathology associated with critical illness (anxiety, sleep disorders, hallucinations and withdrawal)
  - 6.3.2.6 the perioperative management of major neurosurgical procedures

### 6.4 *Neuromuscular Dysfunction*

- 6.4.1 The ability to recognize the seriousness of the problem of a patient with an acute or chronic neuromuscular disorder, institute life-sustaining measures, and compose a program of definitive diagnosis, support, and specific therapy.
- 6.4.2 Demonstrate knowledge of:
  - 6.4.2.1 Specific physiological support (support of vital organs, circulation, respiration, nutrition, bowel, bladder, and skin care)
  - 6.4.2.2 acute neuromuscular disease (disorders of the myoneural junction, myopathy and polyneuropathy of the critically ill, spinal cord syndromes) including investigations and therapeutic options
  - 6.4.2.3 the medical, administrative, and ethical considerations associated with the institution and maintenance of long-term mechanical ventilation
  - 6.4.2.4 supportive services integral to the management of patients with neuromuscular diseases (physiotherapy, occupational therapy, orthotics, social services)

### 6.5 *Renal Dysfunction*

- 6.5.1 The ability to recognize the problem of a patient with oliguria or evidence of advancing or established renal failure, institute measures to preserve remaining renal function, and provide for precise diagnosis, adequate supportive measures, and appropriate therapy.
- 6.5.2 Demonstrate knowledge of:
  - 6.5.2.1 the pathophysiology and management, both medical and surgical, of acute renal failure (pre-renal, renal and post-renal failure)

- 6.5.2.2 pharmacodynamics and nephrotoxins
- 6.5.2.3 perioperative issues, pharmacological management, and potential complications in the renal transplant patient

6.6 *Gastrointestinal Dysfunction*

- 6.6.1 The ability to evaluate the nature of the illness of a patient who presents with gastrointestinal (GI) crisis, institute immediate life-sustaining support, and develop a diagnostic and therapeutic plan.
- 6.6.2 Demonstrate knowledge of:
  - 6.6.2.1 the etiology, diagnosis, and management of the acute abdomen
  - 6.6.2.2 the etiology, diagnosis, and management of hollow viscus dysfunction (obstruction, ischemia, perforation, dysmotility)
  - 6.6.2.3 the etiology, diagnosis, and management of upper and lower GI bleeding
  - 6.6.2.4 the complications of abdominal surgery and trauma

6.7 *Hepatic Dysfunction*

- 6.7.1 The ability to recognize the problem of a patient with jaundice and/or manifest hepatic failure, provide for immediate life-sustaining support, and develop a diagnostic and therapeutic plan.
- 6.7.2 Demonstrate knowledge of:
  - 6.7.2.1 the pathophysiology and management of acute and chronic liver disease
  - 6.7.2.2 the biosynthetic, immunologic, and detoxification functions of the liver
  - 6.7.2.3 the liver transplant patient, including perioperative issues, pharmacological management, potential complications

7. Demonstrate both basic and applied knowledge of the following disorders, as outlined below.

7.1 *Hematological/Oncologic Disorders*

- 7.1.1 The ability to recognize the problem of a patient with a malignancy, a thrombotic or thrombolytic disorder, bleeding, neutropenia, or anemia, provide for any indicated life-sustaining support, and proceed with an orderly course of investigation, management, continued monitoring, and support.
- 7.1.2 Demonstrate knowledge of:
  - 7.1.2.1 the pathogenesis and management of thrombocytopenia, anemia, and neutropenia
  - 7.1.2.2 the pathogenesis and management of oncologic emergencies
  - 7.1.2.3 the pathogenesis and management of hemolytic and vaso-occlusive diseases
  - 7.1.2.4 the coagulation sequence, fibrinolytic pathway, and their associated disorders
  - 7.1.2.5 blood component therapy and alternatives available
  - 7.1.2.6 anticoagulant and fibrinolytic therapies

7.2 *Metabolic - Endocrine Disorders*

- 7.2.1 The ability to recognize the nature and severity of the problem of a patient with metabolic, endocrine, or fluid/electrolyte abnormalities, establish a differential diagnosis, and embark on a course of definitive diagnosis, treatment, and continued monitoring and support.
- 7.2.2 Demonstrate knowledge of:
  - 7.2.2.1 the diagnosis and management of fluid and/or electrolyte disturbances

## OBJECTIVES OF TRAINING IN ADULT CRITICAL CARE MEDICINE (2005)

- 7.2.2.2 the pathophysiology, diagnosis, and treatment of acid-base disorders
- 7.2.2.3 the pathophysiology, diagnosis, and treatment of endocrine emergencies
- 7.2.2.4 normal and abnormal body temperature regulation and their associated disorders

### 7.3 Trauma

- 7.3.1 The ability to manage the patient who has sustained severe trauma, with or without extensive soft tissue and bony injury, in accordance with practices advocated by "Advanced Trauma Life Support (ATLS)" training.
- 7.3.2 Demonstrate knowledge of:
  - 7.3.2.1 the necessity to evaluate and prioritize the unique needs of the traumatized patient
  - 7.3.2.2 the need for continuing care of the traumatized patient with regard to all systems, injured or not
  - 7.3.2.3 the secondary insults that enhance the primary pathogenicity of the traumatized organs

### 7.4 Septic Illness

- 7.4.1 The ability to recognize the infective nature of the condition of a patient with catastrophic septic illness, institute immediate life-sustaining measures, establish a differential diagnosis (site of origin, etiological pathogens), and embark upon a course of definitive diagnosis, continued life support, and appropriate antimicrobial and/or surgical therapy.
- 7.4.2 Demonstrate knowledge of:
  - 7.4.2.1 available techniques for diagnostic procedures
  - 7.4.2.2 the epidemiology of host specific infectious disease
  - 7.4.2.3 the immunocompromised host response
  - 7.4.2.4 preventative infection control techniques, including antibiotic prophylaxis of contacts, when appropriate
  - 7.4.2.5 the pharmacology, indications, complications, interactions, monitoring, and efficacy of usual antimicrobial agents
  - 7.4.2.6 the occult indicators of sepsis
  - 7.4.2.7 the systemic inflammatory response syndrome
  - 7.4.2.8 the multiple organ dysfunction syndrome

### 7.5 Intoxication

- 7.5.1 The ability to formulate a differential diagnosis for a patient potentially suffering from a toxic syndrome and undertake a sequential plan to support organ function, prevent further absorption, alter distribution, and if possible, enhance elimination by natural and mechanical means.
- 7.5.2 Demonstrate knowledge of:
  - 7.5.2.1 the general support, together with any specific antidotes or supportive therapy pertinent to individual intoxicants
  - 7.5.2.2 the pharmacology of common intoxicants
  - 7.5.2.3 strategies to reduce absorption and enhance elimination (hemodialysis, hemoperfusion)
  - 7.5.2.4 the need of patients and families for emotional and psychiatric support

### 7.6 Burns and/or Electrical Injury

- 7.6.1 The ability to institute immediate life-supportive measures for a patient who has sustained primary, secondary, or tertiary life threatening burns and

develop a plan of ongoing support (adequate fluid resuscitation, maintenance of vital organ systems' integrity, prevention and management of burn wound sepsis, minimization of metabolic complications).

- 7.6.2 Demonstrate knowledge of:
  - 7.6.2.1 the pathophysiology and medical/surgical management of the phases of the burn injury
  - 7.6.2.2 the respiratory complications of burn injuries (smoke inhalation, airway burns)
  - 7.6.2.3 the environmental control necessary for optimal care
- 8. Demonstrate both basic and applied knowledge of the following health issues, as outlined below.

#### 8.1 *Nutritional Support*

- 8.1.1 Evaluate the nutritional status of the critically ill patient, identify current deficiencies, ongoing losses, and extra needs induced by the illness, including the ability to devise a management strategy for the provision of either enteral and/or parenteral nutrition to sustain the patient throughout the period of critical illness.
- 8.1.2 Demonstrate knowledge of:
  - 8.1.2.1 fluid compartments and fluid/caloric requirements in the critically ill patient
  - 8.1.2.2 the techniques and laboratory tests used to evaluate nutritional status
  - 8.1.2.3 the methods of assessing basal energy expenditure and monitoring effectiveness
  - 8.1.2.4 indications, limitations, methods, and complications of enteral and parenteral nutritional techniques

#### 8.2 *Pharmacotherapy*

- 8.2.1 Have a thorough knowledge of indications, risks, and side effects of relevant pharmacotherapy.
- 8.2.2 Demonstrate knowledge of:
  - 8.2.2.1 the principles of clinical pharmacology
  - 8.2.2.2 the pharmacologic and therapeutic applications of drugs
  - 8.2.2.3 side effects, drug interactions associated with medications
  - 8.2.2.4 the indications for, and management of, sedation, analgesia, and neuromuscular blockade

#### 8.3 *Transportation*

- 8.3.1 Demonstrate a basic understanding of the problems peculiar to the transportation of the critically ill patient.
- 8.3.2 Demonstrate knowledge of
  - 8.3.2.1 communication, triage and preparation prior to and during transport
  - 8.3.2.2 altitude physiology associated with air transport
  - 8.3.2.3 the unique monitoring and management problems associated with transport
  - 8.3.2.4 the role of paramedical personnel
  - 8.3.2.5 the determination of need for physician accompaniment

#### 8.4 *Transplantation*

- 8.4.1 Demonstrate an awareness of common problems peculiar to transplantation.

8.4.2 Demonstrate knowledge of:

- 8.4.2.1 organ donation and donor management
- 8.4.2.2 the medical, ethical and medico-legal issues of brain death
- 8.4.2.3 immunosuppression and rejection
- 8.4.2.4 opportunistic and nosocomial infectious risk and disease
- 8.4.2.5 the postoperative care of the transplant patient

8.5 *End of Life Issues*

8.5.1 In a patient where death is inevitable the resident will help facilitate a dignified process of life sustaining support withdrawal, without the withdrawal of care.

8.5.2 Demonstrate knowledge of:

- 8.5.2.1 withholding and withdrawing life sustaining therapies
- 8.5.2.2 clear decision-making and communication
- 8.5.2.3 pain and symptom management
- 8.5.2.4 psychological, social and spiritual support
- 8.5.2.5 bereavement
- 8.5.2.6 terminal care

8.6 *Critical Illness in Pregnancy*

8.6.1 In a pregnant woman presenting with acute respiratory failure or shock the resident must be able to institute immediate life-supportive measures and develop a plan of ongoing support that includes adequate fluid resuscitation and maintenance of vital organ systems' integrity for both the mother and fetus.

8.6.2 Demonstrate knowledge of:

- 8.6.2.1 maternal cardiovascular, respiratory, and renal physiology during pregnancy
- 8.6.2.2 critical illness of pregnancy due to circulatory disorders, hypoperfused states
- 8.6.2.3 preeclampsia/eclampsia, pulmonary disorders, acute renal and hepatic failure
- 8.6.2.4 cardiopulmonary resuscitation of the pregnant patient

9. Demonstrate proficiency in the following technical skills: (a core skill requires mastery of the technique; an advanced skill requires an appreciation and understanding of the technique, not the actual performance).

9.1 *Airway*

9.1.2 Core Competencies:

- 9.2.1.1 assessment and maintenance of the airway
- 9.2.1.2 orotracheal intubation
- 9.2.1.3 indication for tracheostomy tube insertion
- 9.2.1.4 replacement of a preexisting tracheostomy tube
- 9.2.1.5 cricothyrotomy and indication for other urgent surgical airways

9.1.3 Advanced Skills:

- 9.2.1.6 airway management during an unexpected difficult intubation
- 9.2.1.7 anaesthesia and airway management during initial tracheostomy tube insertion in the intensive care unit (ICU)
- 9.2.1.8 fiberoptic intubation

- 9.2.1.9 laryngeal mask airway
- 9.2.1.10 retrograde intubation
- 9.2.1.11 transcricoid jet ventilation

## 9.2 Breathing

### 9.2.2 Core Competencies:

- 9.2.2.1 ventilation by bag and mask
- 9.2.2.2 application of conventional positive pressure mechanical ventilation
- 9.2.2.3 application of non-invasive ventilation
- 9.2.2.4 advanced ventilation strategies
- 9.2.2.5 measurement and interpretation of pulmonary mechanics during mechanical ventilation
- 9.2.2.6 application of an end-tidal CO<sub>2</sub> detector post-intubation
- 9.2.2.7 application of capnography
- 9.2.2.8 application of pulse oximetry
- 9.2.2.9 ventilation weaning techniques
- 9.2.2.10 special gas admixture administration (heliox, NO)
- 9.2.2.11 fiberoptic bronchoscopy in the intubated patient
- 9.2.2.12 thoracocentesis
- 9.2.2.13 thoracostomy tube insertion

### 9.2.3 Advanced Skills:

- 9.2.3.1 fiberoptic bronchoscopy in the non-intubated patient
- 9.2.3.2 bronchoalveolar lavage
- 9.2.3.3 protected brush specimen sampling
- 9.2.3.4 intrathoracic pressure (oesophageal pressure) measurements
- 9.2.3.5 hyperbaric oxygenation

## 9.3 Circulation

### 9.3.1 Core Competencies

- 9.3.1.1 knowledge and maintenance of intra-aortic devices
- 9.3.1.2 arterial lines
- 9.3.1.3 central venous lines
- 9.3.1.4 utilization, zeroing, and calibration of transducers
- 9.3.1.5 application and maintenance of pulmonary artery catheter
- 9.3.1.6 cardiac output measurements and other derived calculations from pulmonary artery catheter
- 9.3.1.7 electrocardiogram (ECG) interpretation
- 9.3.1.8 defibrillation
- 9.3.1.9 elective cardioversion
- 9.3.1.10 cardiac overdrive pacing
- 9.3.1.11 temporary transvenous pacemaker
- 9.3.1.12 temporary transcutaneous pacemaker
- 9.3.1.13 Level 1 Infuser
- 9.3.1.14 Pericardiocentesis
- 9.3.1.15 prevention and management of air embolism

### 9.3.2 Advanced Skills

- 9.3.2.1 application of intra-aortic devices



9.4 *Central Nervous System (CNS)*

9.4.1 Core Competencies

- 9.4.1.1 supervision of intracranial pressure (ICP) monitoring
- 9.4.1.2 trouble shooting ICP monitoring
- 9.4.1.3 cerebral spinal fluid (CSF) drainage for raised ICP
- 9.4.1.4 declaration of brain death
- 9.4.1.5 lumbar puncture
- 9.4.1.6 therapy aimed at maintenance of cerebral perfusion pressure
- 9.4.1.7 monitoring the degree of neuromuscular blockade with peripheral nerve stimulation

9.4.2 Advanced Skills

- 9.4.2.1 advanced ICP monitoring techniques
- 9.4.2.2 application of electroencephalogram (EEG) monitoring / cerebral Doppler
- 9.4.2.3 jugular bulb oximetry

9.5 *Renal*

9.5.1 Core competencies

- 9.5.1.1 insertion of a temporary hemodialysis catheter
- 9.5.1.2 indication for continuous renal replacement therapy

9.5.2 Advanced Skills

- 9.5.2.1 supervision of continuous renal replacement therapy
- 9.5.2.2 management of continuous ambulatory peritoneal dialysis (CAPD) in the ICU

9.6 *Gastrointestinal*

9.6.1 Core Competencies

- 9.6.1.1 post-pyloric feeding tube placement
- 9.6.1.2 intra-abdominal pressure monitoring
- 9.6.1.3 peritoneal tap

9.6.2 Advanced Skills

- 9.6.2.1 peritoneal lavage
- 9.6.2.2 gastro-esophageal balloon tamponade

9.7 *Nutrition*

9.7.1 Core Competencies

- 9.7.1.1 determination of a nutritional plan

9.7.2 Advanced Skills

- 9.7.2.1 indirect calorimetry

9.8 *Transport*

9.8.1 Core Competencies

- 9.8.1.1 organization and supervision of inter- and intra-city transfers

9.9 *Other*

9.9.1 Core Competencies

- 9.9.1.1 use of special beds
- 9.9.1.2 application of techniques to treat or induce hypo/hyperthermia

9.9.2 Advanced Skills

9.9.2.1 safe use of fluoroscopy in the ICU

**Communicator**

*General Requirements*

The adult critical care medicine resident must be able to:

1. establish relationships with patients/families
2. listen effectively
3. obtain and synthesize relevant history from patients/families/communities
4. discuss appropriate information with patients/families and the health care team

*Specific Requirements*

1. Assess, communicate with, and support patients and families confronted with critical illness.
2. Explain life-sustaining therapies, in clear language, and describe the expected outcome of such therapies in view of the patient's goals and wishes.
3. Know and understand the consequences of the language used to impart information.
4. Be acquainted with the unique stressful environment of the critical care milieu for patients and their families.
5. Demonstrate respect and understanding for the role of other team members in communicating and facilitating decision-making with critically ill patients and their families.
6. Communicate effectively with families who may be dysfunctional, angry, confused, or litigious.
7. Explain the concept of brain death and organ donation, in clear language.

**Collaborator**

*General Requirements*

The adult critical care medicine resident must be able to:

1. consult effectively with other physicians and health care professionals
2. contribute effectively to interdisciplinary team activities

*Specific Requirements*

1. Contribute to productive communication and cooperation among colleagues in all aspects of education, service, and research, as they impact on the critical care environment, recognizing the multi-disciplinary nature of the specialty.
2. Demonstrate knowledge and skill in preventing and resolving conflict.
3. Demonstrate leadership in the continuing education of members of the multi-disciplinary health care team.

**Manager**

*General Requirements*

The adult critical care medicine resident should be able to:

1. allocate finite health care resources wisely
2. work effectively and efficiently in a health care organization
3. utilize information technology to optimize patient care, life-long learning, and other activities
4. utilize personal resources effectively to balance patient care, learning needs, and outside activities

*Specific Requirements*

1. Be familiar with the administrative organization required to operate an Intensive Care Unit within an acute urban or rural hospital.
2. Be knowledgeable regarding unit staffing requirements, skills, education, and organization.
3. Be able to evaluate and cooperatively determine unit equipment requirements.
4. Be able to manage the clinical, academic, and administrative affairs of an Intensive Care Unit.
5. Demonstrate the ability to acquire, interpret, synthesize, record, and communicate (written and verbal) clinical information in managing health problems in the critical care setting.

**Health\_Advocate**

*General Requirements*

The adult critical care medicine resident should be able to:

1. identify the important determinants of health affecting patients
2. contribute effectively to the improved health of patients and communities

*Specific Requirements*

1. Understand, in general, the diverse determinants of health, disease, and illness, and relate occupational and environmental exposures, socio-economic factors, and life style factors to critical illness.
2. Understand, in general, the health care system and more specifically the structure, function, and financing of critical care units.
3. Understand the importance of medico-legal considerations for the critically ill.
4. Be able to communicate to the general population critical care issues and their impact on the maintenance and improvement of health care.

**Scholar**

*General Requirements*

The adult critical care medicine resident should be able to:

1. facilitate the learning of patients/families, house staff/students and other health professionals
2. contribute to the development of new knowledge
3. develop, implement, and monitor a personal continuing education strategy

*Specific Requirements*

1. Demonstrate the expertise necessary for rational use of the principles of "evidence based medicine" in both clinical and research settings.
2. Demonstrate the expertise to competently appraise:
  - i. levels of evidence
  - ii. interventions
  - iii. diagnostic tests
  - iv. prognosis
  - v. integrative literature (meta-analyses, practice guidelines, decision and economic analyses)
3. Demonstrate a basic understanding of biostatistics, study design, protocol writing, and manuscript preparation.

4. Demonstrate the ability to efficiently access information from the medical literature using current information retrieval tools.
5. Practice the principles of adult learning and help others learn by providing guidance constructive feedback.
6. Be familiar with the concepts of basic applied research and epidemiology in order to capably evaluate newer forms of therapy.

## **Professional**

### *General Requirements*

The adult critical care medicine resident should be able to:

1. deliver the highest quality care with integrity, honesty, and compassion
2. exhibit appropriate personal and interpersonal professional behaviours
3. practice medicine ethically consistent with the obligations of a physician

### *Specific Requirements*

1. Be aware of, and understand, moral and ethical issues as they impact on patients, their families, and critical care providers.
2. Understand the role and responsibilities of the critical care physician at the local, regional, and national levels.

Develop and demonstrate use of a framework for recognizing and dealing with ethical issues in clinical and/or research practice including truth-telling, consent, conflict of interest, resource allocation, and end-of-life care.