

## Surgical Critical Care Fellowship Skills and Competencies

### Skills and Competencies to be demonstrated on completion of the fellowship

*The Surgical Critical Care fellow will be proficient in the performance and supervision of ICU procedures including:*

- placement of central venous catheters
- bronchoscopy
- placement of arterial lines
- tube thoracostomy
- thoracentesis
- paracentesis
- diagnostic peritoneal lavage and aspiration
- fasciotomy
- escharotomy
- endotracheal and nasotracheal intubations

### Patient Care

The Surgical Critical Care fellow will demonstrate competence in the management of critically ill surgical patients. He/she shall be able to render patient care that is compassionate, appropriate, and effective for the prevention and treatment of problems and promotion of health. The fellow will demonstrate competence in a number of procedures, diagnostic tests and skills used in a surgical intensive care unit.

*Specifically, the Surgical Critical Care fellow will be proficient in the following areas:*

- A. Respiratory: airway management, including intubations, bronchoscopy and management of respiratory systems; advanced ventilator management
- B. Circulatory: invasive and noninvasive monitoring techniques, application of transvenous pacemakers, computations of cardiac output and of systemic and pulmonary vascular resistance, and monitoring of electrocardiograms. Management and resuscitation of patients with all types of shock, including use of vasoactive agents. Diagnosis and interpretation of patients with dysrhythmias and complex cardiac disorders, including application of trans-esophageal and transthoracic cardiac ultrasound and transvenous pacemakers, and management of cardiac assist devices.
- C. Renal: the evaluation of renal function; peritoneal dialysis and hemofiltration; knowledge of the indications and complications of hemodialysis; management of patients with acute kidney injury, electrolyte and acid-base disturbances.
- D. Gastrointestinal: utilization of gastrointestinal intubation and endoscopic techniques in the management of the critically ill patient; application of enteral feedings; management of stomas, fistulas, and percutaneous catheter devices;

- E. Hematologic: assessment of coagulation status; appropriate use of component therapy; interpretation of thromboelastography, and indications for massive transfusion protocols and damage control resuscitation.
- F. Infectious disease: classification of infections and application of isolation techniques, pharmacokinetics, drug interactions, and management of antibiotic therapy during organ failure; nosocomial infections; management of sepsis and septic shock.
- G. Nutritional: application of parenteral and enteral nutrition; monitoring and assessing metabolism and nutrition;
- H. Neurologic: Preventive management, diagnosis, and treatment of patients with coma, delirium, and other neurologic disorders; evaluation and non-operative management of severe traumatic brain injury and intracranial hypertension, including management of intracranial pressure and acute neurologic emergencies.
- I. Monitoring/bioengineering: use and calibration of transducers, amplifiers, and recorders;
- J. Miscellaneous: use of special beds for specific injuries; use of traction and fixation devices; indications for applications of hyperbaric oxygen therapy.
- K. End-of-Life Care: End-of-life care, including declaration of brain death, palliative care, and withdrawal of support.

### Medical Knowledge

The fellow must acquire advanced knowledge of the following aspects of critical care, particularly as they relate to the management of patients with hemodynamic instability, multiple organ failure, and complex coexisting medical problems:

*Specifically, the Surgical Critical Care fellow will be proficient in the following areas:*

- A. Cardiorespiratory resuscitation;
- B. Physiology, pathophysiology, diagnosis, and therapy of disorders of the cardiovascular, respiratory, gastrointestinal, genitourinary, neurological, endocrine, musculoskeletal, and immune systems, as well as of infectious diseases;
- C. Metabolic, nutritional, and endocrine effects of critical illness;
- D. Hematologic and coagulation disorders;
- E. Critical obstetric and gynecologic disorders;
- F. Trauma, thermal, electrical, and radiation injuries;
- G. Inhalation and immersion injuries;
- H. Monitoring and medical instrumentation;
- I. Pharmacokinetics and dynamics of drug metabolism and excretion in critical illness;
- J. Ethical, economic and legal aspects of surgical critical care;
- K. Principles and techniques of administration and management;
- L. Biostatistics and experimental design.

## 1. Practice-Based Learning and Improvement

The Surgical Critical Care fellow will develop skills and habits that enable them to: systematically analyze clinical practice using quality improvement methods and implement changes with the goal of practice improvement. He/she will locate, appraise, and assimilate evidence from scientific studies related to their patient's health problems;

*Specifically, the Surgical Critical Care fellow will be able to:*

- A. Undertake investigations into the various areas of surgical critical care, such as:
  - 1. new instrumentation,
  - 2. identification of important physiologic parameters
  - 3. evaluation of pharmacologic agents in critically ill patients, or health outcome
  - 4. health policy issues related to surgical critical care
- B. Evaluate patient care outcomes and seek assistance as needed
- C. Evaluate published literature and apply to patient care, as indicated.
- D. Recognize how quality improvement and performance improvement practices integrate into the clinical care environment.
- E. Continuously improve skills through practice assessment

## 2. Interpersonal Skills and Communication

The Surgical Critical Care fellow will consistently use respectful and effective communication skills with patients, their families and other health care professionals, in order to optimize medical care.

*Specifically, the Surgical Care Critical fellow will be able to*

- A. Supervise and teach the specialty of surgical critical care
- B. Educate the patient and family members concerning diagnosis and treatment plan
- C. Effectively communicate team plan with surgical colleagues and critical care personnel
- D. Discuss patient diagnoses with team and determine need for specialty consulting physicians
- E. Understand him/herself to be a member of a care team and communicate effectively and respectfully with co-care providers

## 3. Professionalism

The Surgical Critical Care fellow will manifest a commitment to carrying out professional responsibilities and an adherence to ethical principles.

*Specifically, the Surgical Critical Care fellow be able to:*

- A. Demonstrate the practice of ethical principles in relation to patient care including:
  - 1. Informed consent
  - 2. Implementing “Do Not Resuscitate” orders
  - 3. Withholding or withdrawing life support
  - 4. Clarifying goals of care from advanced directives
- B. Develop effective relationships with consultants, surgeons, nurses, pharmacists and respiratory therapist
- C. Be a positive role model

#### **4. Systems Based Practice**

The Surgical Critical Care fellow will demonstrate an awareness of and responsiveness to the larger context and system of health care. He/she will recognize and effectively call on other resources in the system to provide optimal health care for the critically ill patient.

*Specifically, the Surgical Critical Care fellow will be able to:*

- A. Administer a surgical critical care unit
- B. Appoint, educate and supervise specialized personnel
- C. Establish policy and procedures for the unit
- D. Coordinate the activities of the unit with other administrative units within the hospital.