CRITICAL CARE LEARNING OBJECTIVES

Preamble

General surgeons are often involved in the care of patients who may be critically ill or injured and who may require management in the intensive care unit. Therefore the Critical Care rotation provides an excellent opportunity for the General Surgery resident to attain the knowledge and skills necessary for the management of the critically ill surgical patient.

General Objectives

Upon completion of the Critical Care rotation, the General Surgery resident is expected to:

- Demonstrate knowledge, clinical and technical skills and decision-making capabilities pertinent to the management of critically ill patients
- Demonstrate awareness of the ethical principles pertinent to critically ill patients, including end-of-life care and issues around withdrawing and withholding life support

Specific Objectives

At the completion of the Critical Care rotation, the General Surgery resident will have acquired the following competencies and will function effectively as:

**Medical Expert**

- Establish and maintain knowledge, skills and attitudes appropriate to the Critical Care rotation
  - Apply knowledge of the clinical, socio-behavioral and fundamental biomedical sciences relevant to the Critical Care rotation

The resident in General Surgery is required to attain sufficient knowledge as follows:

**Airway Management**

- Principles of airway management
- Indications for intubation

**Respiratory Critical Care**

- Interpretation of blood gases
- Assessment of acid-base status
- Provision of ventilator orders for most patients
- ARDS

**Cardiac Critical Care**

- ACLS principles
- Recognition of common rhythm disturbances
- Interpretation of electrocardiogram/recognition of important life-threatening findings

**Shock**

- Classification of shock, including:
  - Hypovolemic shock
  - Distributive shock
  - Cardiogenic shock
  - Anaphylactic shock
  - Neurogenic shock
- Outline of hemodynamic patterns specific to different causes of shock
- Appropriate use of inotropes and vasopressors

**Sepsis and Critical Care**

- Organ failure associated with sepsis

**Renal Problems and Critical Care**

- Renal failure and principles of dialysis/ultrafiltration
- Fluid and electrolyte disorders
- Myoglobinuria

**Nutritional Support in Critical Care**

- Nutritional assessment in the ICU
- Enteral nutrition
- Parenteral nutrition
- Gastrointestinal and Hepatic Critical Care
  - Stress gastritis
  - Gastrointestinal bleeding
  - Hepatic failure
  - Perform a complete and appropriate assessment of the critically ill patient
    - Elicit a history that is relevant, concise and accurate
    - Perform a focused physical examination that is relevant and accurate
    - Select medically appropriate investigations in a resource-effective and ethical manner
    - Examine and review each of the assigned patients before morning rounds
    - Demonstrate effective clinical problem solving and judgment to address the problems, including interpreting available data and integrating information to generate problem lists and to outline management plans
- Use therapeutic interventions effectively
  - Implement an effective and prioritized management plan for the critically ill patient
  - Demonstrate effective, appropriate and timely application of therapeutic interventions relevant to the Critical Care rotation
  - Ensure appropriate informed consent is obtained for therapies
- Demonstrate proficient and appropriate use of procedural skills
  - Demonstrate effective, appropriate and timely performance of diagnostic procedures relevant to the Critical Care rotation
  - Demonstrate effective, appropriate and timely performance of therapeutic procedures relevant to the Critical Care rotation
  - Ensure appropriate informed consent is obtained for procedures
  - Compile and maintain an accurate and complete electronic data base of all procedures performed during the Critical Care rotation

Having completed the Critical Care rotation, the General Surgery resident will be able to demonstrate knowledge and technical competence in performing the following procedures:
- Arterial line placement
- Basic airway management, including:
  - Bag/mask ventilation
  - Uncomplicated intubation
- Central venous catheter insertion
- Application of ACLS principles in patient resuscitation

- Seek appropriate consultation from other health professionals
  - Demonstrate insight into his/her own limitations by self-assessment
  - Demonstrate effective, appropriate and timely consultation of another health professional as needed for optimal care of the critically ill patient

Communicator

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

- Develop rapport, trust and ethical therapeutic relationships with patients and families
  - Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
  - Respect patient confidentiality, privacy and autonomy
  - Listen effectively
- Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals
  - Seek out and synthesize relevant information from other sources such as the family, caregivers and other professionals
- Accurately convey relevant information and explanations to patients and families, colleagues and other professionals
  - Deliver information to the patient and family, colleagues and other professionals in a humane and understandable manner, including:
    - Informed consent
    - Medical condition of the patient
    - Treatment plan
    - Prognosis
    - Primary and secondary prevention
    - Adverse events
    - Medical uncertainty
    - Medical errors
    - End-of-life wishes
    - Autopsy
    - Organ donation
  - Keep attending physicians apprised of relevant events
• **Convey effective oral and written information**
  - Maintain clear, accurate, appropriate and timely records of clinical encounters with each assigned patient on a daily basis
  - Maintain an accurate, complete and up-to-date electronic database (log) of procedures performed during the Critical Care rotation
  - Effectively present verbal reports of clinical encounters and medical information in an organized and concise manner during the Critical Care rotation

**Collaborator**

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

• **Participate effectively and appropriately in an interprofessional healthcare team**
  - Recognize and respect the diversity of roles, responsibilities and competences of other professionals in the management of the critically ill patient
  - Work with nursing colleagues and others to assess, plan, provide and integrate care of the critically ill patient

**Manager**

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

• **Manage his/her professional and personal activities effectively**
  - Set priorities and manage time to balance professional responsibilities, outside activities and personal life
  - Employ information technology effectively (e.g. electronic procedure database)

• **Demonstrate an understanding of cost-effectiveness in patient management**
  - Utilize hospital resources wisely when managing patients

• **Serve in leadership roles, as appropriate**
  - Participate effectively at teaching rounds and other meetings

**Health Advocate**

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

• **Respond to the needs of the critically ill patient**
  - Identify the health needs of an individual patient

**Scholar**

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

• **Maintain and enhance professional activities through ongoing learning**
  - Pose an appropriate learning question
  - Access and interpret the relevant evidence
  - Integrate new learning into development as a general surgeon

• **Critically evaluate medical information and its sources and apply this appropriately to clinical decisions**
  - Critically appraise the critical care evidence in order to address a clinical question
  - Integrate critical appraisal conclusions into clinical care

**Professional**

At the completion of the Critical Care rotation, the General Surgery resident will be able to:

• **Demonstrate a commitment to patients through ethical practice**
  - Exhibit appropriate professional behaviors, including honesty, integrity, commitment, compassion, respect and altruism
  - Recognize and appropriately respond to ethical issues such as consent, advanced directives, confidentiality, end-of-life care and withdrawing and withholding life support
  - Appropriately manage conflicts of interest
  - Recognize the principles and limits of patient confidentiality
  - Maintain appropriate relations with patients