

# SICU

**Institution:** Vanderbilt University Medical Center

**Duration:** 5 weeks

**Supervising Physician:** Shannon Eastham, MD

**Contact Information:**  
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**Year of Training:** PGY-2

## Educational Objectives:

The Surgical Intensive Care Unit provides residents with a multidisciplinary approach to care of the critically ill surgical patient. The units are very active critical care facilities with state-of-the-art monitoring and support technology. The course content emphasizes a physiologic approach to the care of critically ill general, vascular, transplant, geriatric, oncology, and emergency surgical patients. Residents will gain experience with invasive hemodynamic monitoring, mechanical ventilation, enteral/parenteral nutrition, surgical infectious disease, and management of vasoactive medications. Topics such as cost containment, resource utilization, and medical ethics are an integral part of daily intensive care management.

### At the end of the critical care rotation persons will be able to:

- ✓ Show an understanding of a comprehensive approach to patients with multi-system critical illness (Systems-based Practice)
- ✓ List the indications and complications of invasive hemodynamic monitoring
- ✓ Demonstrate an understanding of the techniques for arterial, central venous, and pulmonary arterial catheterization
- ✓ List and prioritize means for increasing cardiac output
- ✓ Define in physiologic terms the adequacy of cardiac output
- ✓ Reproduce and utilize the formulae for SVRI, PVRI, LVSWI, RVSWI, CI, SV, CPP, and MAP
- ✓ List major risk factors for acute respiratory failure
- ✓ Discriminate between oxygenation, ventilation, and airway support
- ✓ List the physiologic mechanisms responsible for arterial hypoxemia
- ✓ Discuss indications, contraindications and complications of CMV, IMV, PSV, CPAP, and PEEP
- ✓ Discuss methods of supporting oxygenation in patients with arterial hypoxemia
- ✓ Reproduce and utilize the formulae for O<sub>2</sub> content, alveolar O<sub>2</sub> tension, Q<sub>sp</sub>/Q<sub>t</sub>, C(a-v)O<sub>2</sub>, oxygen delivery, oxygen consumption, oxen utilization
- ✓ Define and list the major categories of shock
- ✓ Interpret arterial blood gas measurements in terms of acid base disorders, adequacy of oxygenation, and adequacy of ventilation
- ✓ List the differential diagnosis of oliguria
- ✓ Identify laboratory tests that discriminate between intrinsic renal and pre-renal causes of oliguria
- ✓ Discuss methods for prophylaxis against acute upper GI bleeding in acutely stressed patients
- ✓ Discuss non-pancreatic organ system dysfunction associated with acute pancreatitis
- ✓ Discuss the changes in biochemical markers associated with acute hepatobiliary dysfunction
- ✓ Identify and use screening tests available for the evaluation of coagulation disorders
- ✓ Present to your peers the complex problems of critically ill patients in a logical and comprehensive manner.
- ✓ Select and administer appropriate resuscitation fluids for critically ill patients.

### Medical Knowledge & Patient Care Milestones:

- ✓ Demonstration of ventilator management
- ✓ Independent insertion of central lines, swans, and a-lines
- ✓ Understanding of infectious disease in the ICU
- ✓ Ability to manage inotropic medicines
- ✓ Knowledge of hypoxia and its differential
- ✓ Ability to interpret EKGs
- ✓ Knowledge of cardiovascular physiology and interpretation of hemodynamic parameters

### **Practice-Based Learning and Improvement**

**Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:**

- ✓ Write an accurate, detailed, and legible preoperative assessment and counseling note on all patients for which he/she serves as surgeon of record.
- ✓ Utilize assigned journal articles as well as available textbook chapters and information technology (including PubMed search and literature review).
- ✓ Participate in the education of patients, families, students, residents, and other health professionals.
- ✓ Incorporate formative evaluation feedback into daily practice.

### **Interpersonal and Communication Skills**

- ✓ The resident should ensure that the attending is aware of the progress of all patients on the service.
- ✓ The resident should clearly, accurately, and respectfully communicate with nurses and other Hospital employees.
- ✓ The resident should clearly, accurately, and respectfully communicate with referring and consulting physicians, including residents.
- ✓ The resident should clearly, accurately, and respectfully communicate with patients and appropriate members with their families about identified disease processes (including complications), the expected courses, operative findings, and operative procedures.
- ✓ The resident should ensure that clear, concise, accurate, and timely medical records are maintained on all patients.
- ✓ The resident should be able to clearly and accurately teach medical students and junior residents about the procedures performed on this rotation when qualified to do so by hospital and program policy.

### **Professionalism**

**Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents must:**

- ✓ Demonstrate compassion, integrity, and respect for others.
- ✓ Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
- ✓ Demonstrate sensitivity to issues of age, race, gender, and religion with patients, family, and members of the healthcare team.
- ✓ Demonstrate respect for patient privacy and autonomy.
- ✓ Remain honest with all individuals at all times in conveying issues of patient care.
- ✓ Respond to the needs of the patient above one's own needs and desires.
- ✓ Maintain high standards of ethical behavior in all professional activities.
- ✓ Demonstrate a commitment to the continuity of patient care to carrying out professional responsibilities or through assuring that those responsibilities are fully and accurately conveyed others acting in his/her stead.
- ✓ Understand the institutional policy on duty hours and remain compliant with all duty hour regulations. Residents must enter the number of hours spent in the hospital into the tracking system within 24 hours of duty.
- ✓ Be properly and professionally attired at all times while engaged in patient care.
- ✓ Be properly and professionally groomed at all times when engaged in patient care.
- ✓ At all times treat patients, families, and all members of the healthcare team with respect.
- ✓ Reliably be present in prearranged places at prearranged times except when actively engaged in the treatment of a medical or surgical emergency. The resident must notify the appropriate supervisor if he or she will be unable to be present.
- ✓ Remain compliant with all required training designated by the institution.

### **Systems-based practice**

- ✓ The resident should be able to assess the risks and benefits of all options for treating patients with surgical illness.
- ✓ The resident should be able to summarize the financial costs, potential complications, and long-term expectations for planned procedures.
- ✓ The resident should recognize the differences between the three hospital systems in which he or she will participate: federal, university, and private.
- ✓ The resident should be able to determine the benefit of additional treatment by other services such as plastic surgery, interventional radiology, and orthopedics.

- ✓ The resident should be able to determine and convey to appropriate individuals the instruments and other materials necessary for all procedures.

### **Description of Clinical Experiences:**

The patient care service consists of a surgical or anesthesia attending physician, a surgical critical care fellow, mid-level surgical/anesthesia residents, and surgical interns. Other staff available in the unit includes clinical pharmacists, respiratory therapists, and nurse practitioners. Teaching rounds are made each morning with didactic lectures and case-discussions Monday-Friday. Friday morning attendance of surgical grand rounds and resident teaching conference is mandatory. Evaluation of the resident's performance is based on clinical knowledge, basic science application, integration into the team, and progression in learning throughout rotation.

### **Description of Didactic Experiences:**

Attend all scheduled education and conferences while on rotation.

### **Evaluation Process:**

Faculty and senior residents will evaluate the performance of each resident using these goals and objectives. Each resident on the service will evaluate the rotation, the service, faculty and any senior residents also on the rotation.

### **Other Important Rotation Information:**