

## Surgical Critical Care Curriculum - VA SICU (PGY-1)

**Institution:** Nashville VA SICU

**Duration:** 4 Weeks

**Supervising Physician:** John Barwise

**Contact Information:** 615 300 2796

**Year of Training:** PGY -1

### **Educational Objectives:**

Critical care refines the essential skills of Surgical and Anesthesiology Residents. The VA SICU rotation will provide the resident with a variety of medically complicated patients, including postoperative cardiothoracic, vascular, and general surgery patients. Often, multiple vital organ systems have been damaged and therapies must be carefully titrated to restore a patient's physiological reserve. Invariably, you will encounter such patients both in the operating room and in the ICU. Thus, the recognition and knowledge of these pathophysiologic processes is instrumental towards becoming a complete perioperative anesthesiology consultant, and this critical care rotation will provide an opportunity for residents to not only participate in the postoperative care of our sickest patients but to review the effects of the intraoperative anesthetic course on patient outcomes.

PGY-1 Residents will participate in a rich educational environment in the VA SICU, treating patients with both common and uncommon acute illnesses. During this time, the fundamentals of physiology and pathology are illustrated in patients and through a program of didactic lectures. This information is further amplified by discussion on unit rounds and in interactions with attending intensivists and critical care fellows. Active management of critically ill patients further solidifies this knowledge, and patient care responsibilities are progressively expanded as clinical acumen matures while remaining under the mentorship of the intensivist. It is anticipated that in this process the anesthesia resident will develop critical thinking skills, comprehensive treatment approaches, effective teamwork, and knowledge of one's limitations.

Additionally, many procedures common to both the ICU and the operating room are learned, practiced, and mastered in the ICU. These procedural techniques include placement of various intravenous and intraarterial catheters, laryngoscopy, and bronchoscopy. Interpretation and subsequent management of intracranial pressure monitors, non-mechanical and mechanical ventilation, EKGs, Chest X-rays, CT Scans, and MRIs occurs daily.

PGY- 1 residents improve their pathophysiology understanding and medical management through this combination of didactics, patient care, and study in the ICU. It is with this backdrop that we have crafted an educational experience that covers the broad range of pathology that you will experience during the practice of critical care medicine in the VA SICU.

### **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:**

### **Rotation Routine:**

- Residents are expected to participate in departmental morning conferences throughout the week.
- It remains the responsibility of each resident to tally duty hours assuring the following ACGME limits are maintained: no more than 80 hours / week over any two-week period; no more than 16 hours of continuous work; at least one 24 hour period away from the hospital each week. If a resident is at any point in violation of duty hours, it is their responsibility to inform the ICU Faculty.
- SICU Intern must be present in the SICU at 5:45 am to receive sign-out from the overnight NP and go over patient related issues with the residents, fellows, and/or faculty before the beginning of rounds.

- The intern is the first call for all surgical services within the SICU. Backup will be provided in-house by senior residents, critical care fellows, or attendings.
- The Intern will present the overnight events, laboratory findings, etc. and develop a plan of care for each patient during rounds. Senior residents and fellows will refine the plan of care during rounds.
- The team, including intern, will communicate with primary and consulting teams regarding patient management.
- The intern will participate in daily educational conferences.
- The intern will participate in sign-out between the day and night teams.

**Rounding procedures:**

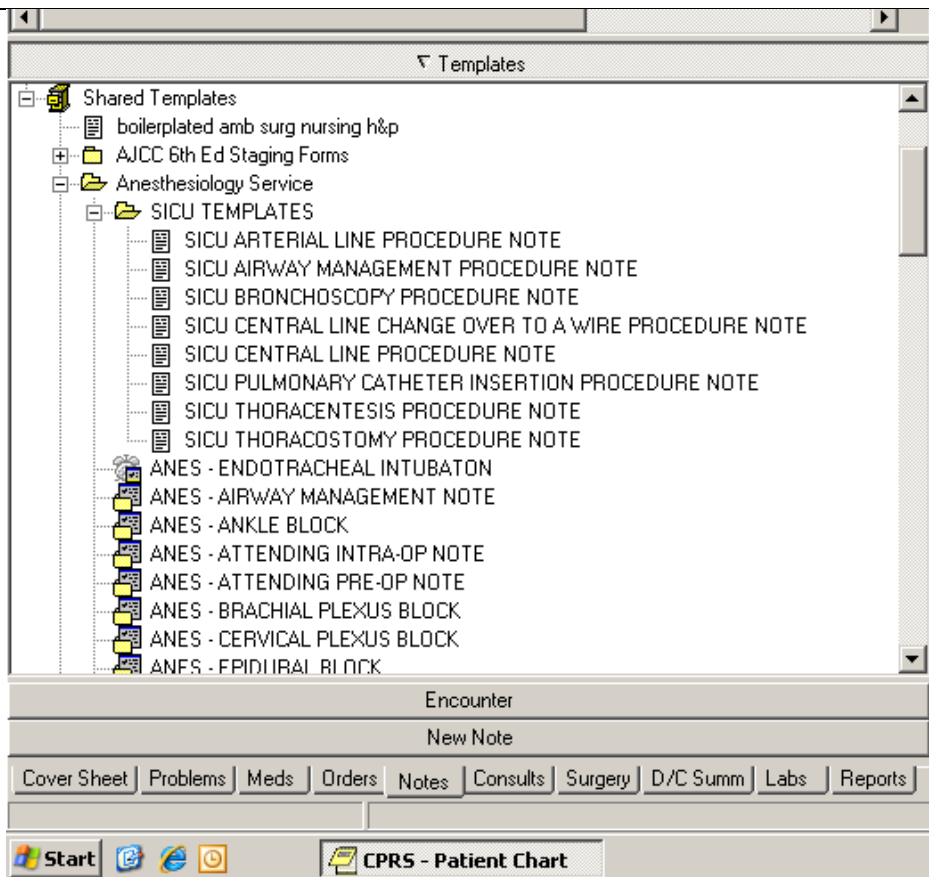
- Rounds should begin 8:00 am each day of the week except Friday, when they begin at 9:00 am.
- As possible, rounds should be efficient and completed in a timeframe that allows completion of time sensitive procedures, patient care activities, and educational responsibilities.
- Patient nursing staff should be included in the rounding process. This generally is best achieved at the patient's bedside
- Afternoon rounds typically occur at 3:00-400 pm at the discretion of the fellow or attending.

**Post-rounding procedures:**

- At the completion of rounds, the intern and senior resident should communicate to appropriate members of the primary service those issues or plans of care that differ from those established prior to rounds.
- Orders should be entered and procedures should be completed as soon as possible.
- Daily discussion of education articles (provided in binder at beginning of rotation) at 11:00 am or other designated time.
- One-on-one individualized instruction by resident, fellow, and faculty (daily).

**VA ICU Note Writing Guidelines**

- A note must be entered in CPRS detailing the plan for the day with the SICU Attending of the week designated as co-signor for the note (to be completed by the ICU Intern).
- All procedures performed in the SICU should be documented in CPRS with the SICU Attending of the week designated as the co-signor for the note.
- Daily Progress Note: Please use note title "SICU NOTE" from CPRS for all your daily progress notes
- Procedure Note: Please use the note title "SICU PROCEDURE NOTE" from CPRS for all your procedure notes. Please remember to perform TIME – OUT and document it in the procedure note. Templates for most of the common procedures performed in the ICU are available.  
In CPRS access the Shared Template folder (under templates); scroll to Anesthesiology Service and open the SICU Templates as shown below.



- A critical care event note is available in CPRS to document Critical Events in the ICU.

## Description of Didactic Experiences:

### Y-1 ICU Resident Goals and Objectives

#### Patient Care and Medical Knowledge:

- A. Describe basic differential diagnoses, physiology, and management for common problems of the following organ systems or disease states:
  - 1) Respiratory (pneumonia, ARDS, pulmonary edema, atelectasis)
  - 2) Cardiac (left heart failure, right heart failure, arrhythmia)
  - 3) Renal (oliguria, kidney injury, renal failure, UTI)
  - 4) Gastrointestinal and Hepatic (cholecystitis, pancreatitis, obstruction, abdominal sepsis, abdominal compartment syndrome)
  - 5) Neurological (delirium, coma, stroke)
  - 6) Metabolic (endocrine, electrolytes, nutrition)
  - 7) Hematologic (anemia, coagulopathy, thrombocytopenia, leukocytosis)
  - 8) Infectious (pneumonia, bacteremia, abdominal abscess, necrotizing fasciitis, UTI)
  - 9) Sepsis and SIRS
  - 10) Shock (distributive, obstructive, cardiogenic, mixed)
- B. Describe the basic indications, contraindications, and/or interpretation of the following:
  - 1) tracheal intubation
  - 2) mechanical ventilation, including basic ventilator modes (CMV, SIMV, PRVC, PSV) and weaning techniques.
  - 3) pulmonary artery catheter placement

- 4) administer appropriate fluids for critically ill patient
- 5) renal replacement therapy, including techniques for dialysis
- 6) blood gases, electrolytes
- 7) major categories of shock
- 8) bedside central pressure monitoring
- 9) noninvasive techniques for assessing oxygenation and gas exchange
- 10) enteral and parenteral nutrition
- 11) techniques for pain management and sedation

C. Describe the basic pharmacology and use of the following classes of drugs:

- 1) antiarrhythmics
- 2) antihypertensives
- 3) inotropes
- 4) vasoactive pressors
- 5) antimicrobials

**Technical Skills:**

A. Perform the following procedures (supervised):

- 1) Arterial line placement (radial, femoral)
- 2) Insertion of a pulmonary artery catheter
- 3) Effective bag-mask ventilation
- 4) Insertion of subclavian, jugular, femoral venous catheters with and without ultra-sound guidance

**Interpersonal & Communication Skills & Professionalism - Other Attributes of Resident:**

- 1) Works with members of the other surgical services and understands the role of teamwork in the ICU setting.
- 2) They will also have an understanding of the socioeconomic, legal, and ethical issues associated with Critical Care Medicine.

**Practice-based Learning & Improvement Objectives:**

- 1) To prepare the resident for the practice of critical care medicine, by instruction in the diagnosis and management of the critically ill patient.
- 2) To evaluate the severity of diseases in critically ill patients and to recognize, prioritize, and treat life threatening derangements.
- 3) To learn basic principles of airway management and oxygen transport; institution, management, and weaning of mechanical ventilation; altering cardiopulmonary physiology; acute brain dysfunction; nutritional support; antimicrobial therapy; management of sepsis and multiple system organ failure; invasive and non-invasive techniques for cardiac and pulmonary monitoring; management of renal impairment.

**Didactic Curriculum**

**The intern will be given a folder with all the journal articles at the beginning of the month. The ICU Fellow will designate the topics for the month. The intern should attend all didactic monthly scheduled conferences per primary Specialty Residency**

**Textbooks and Reading Sources:**

- I. The Clinical Handbook of Surgical Critical Care. Burchard KW, Gann DS, and Wiles CE (eds). Parthenon Publishing NY, NY. 1998.
- II. VA-SICU Handbook of Relevant Literature in Surgical Critical Care.
- III. The ICU Book. Paul Marino. 3rd Edition.
- IV. Recommended Articles

1. The National Heart, Lung, and Blood Institute Acute Respiratory Distress Syndrome (ARDS) Clinical Trials Network. Comparison of Two Fluid-Management Strategies in Acute Lung Injury. *N Engl J Med* 2006; 354:2564-2575.
2. [Mercat A](#), [Richard JC](#), [Vielle B](#), [Jaber S](#), [Osman D](#), [Diehl JL](#), [Lefrant JY](#), [Prat G](#), [Richecoeur J](#), [Nieszkowska A](#), [Gervais C](#), [Baudot J](#), [Bouadma L](#), [Brochard L](#); [Expiratory Pressure \(Express\) Study Group](#). Positive end-expiratory pressure setting in adults with acute lung injury and acute respiratory distress syndrome: a randomized controlled trial. *JAMA*. 2008 Feb 13;299(6):646-55.
3. [National Heart, Lung, and Blood Institute Acute Respiratory Distress Syndrome \(ARDS\) Clinical Trials Network](#). Ventilation with lower tidal volumes as compared with traditional tidal volumes for acute lung injury and the acute respiratory distress syndrome. The Acute Respiratory Distress Syndrome Network. *N Engl J Med*. 2000 May 4;342(18):1301-8.
4. [Girard TD](#), [Kress JP](#), [Fuchs BD](#), [Thomason JW](#), [Schweickert WD](#), [Pun BT](#), [Taichman DB](#), [Dunn JG](#), [Pohlman AS](#), [Kinniry PA](#), [Jackson JC](#), [Canonica AE](#), [Light RW](#), [Shintani AK](#), [Thompson JL](#), [Gordon SM](#), [Hall JB](#), [Dittus RS](#), [Bernard GR](#), [Ely EW](#). Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomised controlled trial. *Lancet*. 2008 Jan 12;371(9607):126-34.
5. Ely EW, Baker AM, Dunagan DP, [Burke HL](#), [Smith AC](#), [Kelly PT](#), [Johnson MM](#), [Browder RW](#), [Bowton DL](#), [Haponik EF](#). Effect on the duration of mechanical ventilation of identifying patients capable of breathing spontaneously. *N Engl J Med*. 1996 Dec 19;335(25):1864-9.
6. [Dellinger RP](#) et al. Surviving Sepsis Campaign: international guidelines for management of severe sepsis and septic shock: 2008. *Crit Care Med*. 2008 Jan;36(1):296-327.
7. [Finfer S](#), [Bellomo R](#), [Boyce N](#), [French J](#), [Myburgh J](#), [Norton R](#); [SAFE Study Investigators](#). A comparison of albumin and saline for fluid resuscitation in the intensive care unit. *N Engl J Med*. 2004 May 27;350(22):2247-56.
8. [Hébert PC](#), [Wells G](#), [Blanchman MA](#), [Marshall J](#), [Martin C](#), [Pagliarello G](#), [Tweeddale M](#), [Schweitzer I](#), [Yetisir E](#). A multicenter, randomized, controlled clinical trial of transfusion requirements in critical care. Transfusion Requirements in Critical Care Investigators, Canadian Critical Care Trials Group. *N Engl J Med*. 1999 Feb 11;340(6):409-17.
9. [Napolitano LM](#), [Kurek S](#), [Luchette FA](#), [Corwin HL](#), [Barie PS](#), [Tisherman SA](#), [Hebert PC](#), [Anderson GL](#), [Bard MR](#), [Bromberg W](#), [Chiu WC](#), [Cipolle MD](#), [Clancy KD](#), [Diebel L](#), [Hoff WS](#), [Hughes KM](#), [Munshi I](#), [Nayduch D](#), [Sandhu R](#), [Yelon JA](#); [American College of Critical Care Medicine of the Society of Critical Care Medicine](#); [Eastern Association for the Surgery of Trauma Practice Management Workgroup](#). Clinical practice guideline: red blood cell transfusion in adult trauma and critical care. *Crit Care Med*. 2009 Dec;37(12):3124-57.

10. [Rivers E](#), [Nguyen B](#), [Havstad S](#), [Ressler J](#), [Muzzin A](#), [Knoblich B](#), [Peterson E](#), [Tomlanovich M](#); [Early Goal-Directed Therapy Collaborative Group](#). Early goal-directed therapy in the treatment of severe sepsis and septic shock. [N Engl J Med](#). 2001 Nov 8;345(19):1368-77.
11. Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, [Cosgrove S](#), [Sexton B](#), [Hyzy R](#), [Welsh R](#), [Roth G](#), [Bander J](#), [Kepros J](#), [Goeschel C](#). An intervention to decrease catheter-related bloodstream infections in the ICU. [N Engl J Med](#). 2006 Dec 28;355(26):2725-32.
12. Bellomo R, Kellum JA, Ronco C. Defining and classifying acute renal failure: from advocacy to consensus and validation of the RIFLE criteria. [Intensive Care Med](#). 2007 Mar;33(3):409-13.
13. [Uchino S](#), [Kellum JA](#), [Bellomo R](#), [Doig GS](#), [Morimatsu H](#), [Morgera S](#), [Schetz M](#), [Tan I](#), [Bouman C](#), [Macedo E](#), [Gibney N](#), [Tolwani A](#), [Ronco C](#); [Beginning and Ending Supportive Therapy for the Kidney \(BEST Kidney\) Investigators](#). Acute renal failure in critically ill patients: a multinational, multicenter study. [JAMA](#). 2005 Aug 17;294(7):813-8.
14. Part I Postoperative Critical Care of the Adult Cardiac Surgical Patient. Part I: Routine Postoperative Care R. Scott Stephens, MD; Glenn J. R. Whitman, MD Critical Care Medicine July 2015 Volume 43 Number (7) 1477-1497.
15. Postoperative Critical Care of the Adult Cardiac Surgical Patient: Part II: Procedure-Specific Considerations, Management of Complications, and Quality Improvement. R. Scott Stephens, MD; Glenn J. R. Whitman, MD Critical Care Medicine September 2015 Volume 43 Number (9)1995-2014.
16. The ABCDEF Bundle: Science and Philosophy of How ICU Liberation Serves Patients and Families Wesley Ely, MD Critical Care Medicine February 2017 • Volume 45 • Number 2 321-330.

## 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. Interns will be assessed in accordance with achievement of objectives listed in detail here within. This assessment will include:

- A. Subjective evaluations by attendings that will judge the resident's:
  - 1) Medical acumen.
  - 2) Effectiveness as a caregiver.
  - 3) Teamwork with residents, nurses, staff members, and family.
  - 4) Achievement of procedural skills
  - 5) Ability to perform all aspects of a patient's admission, convalescence, and discharge.
  - 6) Effectiveness in discussing patient's condition and plan with patient's family.
  - 7) Intellectual and professional growth during the rotation.
  - 8) Presentation of a critical care topic at the multidisciplinary conference.
- B. Objective Medical Knowledge & Patient Care Milestones:
  - 1) Knowledge of basic airway management
  - 2) Interpretation of hemodynamic data
  - 3) Knowledge of basic Ventilator Management

- 4) Able to insert Central Line
- 5) Able to insert Arterial Line
- 6) Ability to titrate drips

**Other Important Rotation Information:**

ACGME Core curriculum rotation evaluations in “New Innovations” website.