

SICU
Riverside University Health System
Goals and Objectives
PGY 1

Goals:

RCRMC will provide a learning environment for the care and management of the critically ill patient requiring intensive care. Surgical basic science, including fluids and electrolytes, wound healing and nutrition will be emphasized. Clinically, residents will assess the critically ill patient, develop clinical judgment on managing these issues, and become proficient in managing and weaning off ventilator support. Careful postoperative care and follow up will be emphasized. Residents will develop cognitive and technical skills in dealing with complex critically ill patients.

The Surgical Intensive Care Unit (SICU) is a 36 bed, high-acuity, multi-specialty critical care unit in an ACS accredited Level II Trauma Center with more than 1800 trauma admissions a year. The surgical specialties supported in the SICU include trauma, neurosurgery, general surgery, thoracic surgery, orthopedics, spine, ear nose and throat, plastics, vascular surgery, urology and high risk obstetrics.

The educational program for all levels includes daily teaching rounds, seminars, psychomotor skills sessions and human patient simulator sessions. PGY1 or 2 residents rotate from various programs, including general surgery, anesthesiology, orthopedic surgery and family medicine.

Objectives:

Medical Knowledge:

- Learn in depth the fundamentals of basic science as they apply to patients in the intensive care unit. *Examples include anatomy, physiology and pathophysiology of the cardiovascular, respiratory, genitourinary, gastrointestinal, musculoskeletal, hematologic, endocrine systems, respiratory failure, coronary ischemia, shock, malnutrition, stress ulceration, nonocclusive intestinal ischemia, antibiotic-associated colitis, antibiotic resistance, jaundice, and renal insufficiency.*
- Learn the rationale for admission and discharge criteria in the ICU.
- Learn factors associated with assessment of preoperative surgical risk. Examples include evaluation of the high risk cardiac patient undergoing non-cardiac surgery.
- Learn fluid compositions and the effect of the losses of such fluids as gastric, pancreatic and biliary fistulas at various levels.
- Learn the indications for, and complications of blood component therapy.
- Be able to discuss the pathophysiology of respiratory failure.
- Be able to demonstrate an understanding of acid-base disorders, including diagnosis, etiology, and instituting appropriate treatment.
- Be able to discuss the pathophysiology, indications, and complications associated with various modes of mechanical ventilation. Examples include ventilator management of ALI, ARDS and thoracic trauma, as well as weaning from ventilator support.

- Become familiar with the role of hormones and cytokines in the graded metabolic response to injury, surgery and infection.
- Understand the indications, routes and complications of administration of parenteral and enteral forms of nutrition.
- Become familiar with the factors associated with altered mental status. Examples include traumatic, septic, metabolic and pharmacologic causes.
- Become familiar with the risk factors associated with stress gastritis.
- Become familiar with the causes and treatment regimens for gastrointestinal bleeding. Examples include bleeding from upper and lower GI sources.
- Become familiar with the factors associated with bleeding disorders. Examples include DIC, ITP, hemophilia, coagulopathy associated with shock and hypothermia.
- Become familiar with the pathophysiology of hemodynamic instability. Examples include types of shock, cardiac arrest.
- Know and apply treatments for arrhythmias, congestive heart failure, acute ischemia and pulmonary edema.
- Become familiar with adjuncts to the analysis of respiratory mechanics and gas exchange. Examples include work of breathing, rapid shallow breathing index, CO₂ analysis and dead space measurements.
- Learn fluid and electrolyte as well as acid/base abnormalities associated with complex surgical procedures and complications. Examples include massive fluid shifts associated with trauma, shock and resuscitation, high output fistulas and renal failure.
- Learn the pathophysiology associated with endocrine emergencies in the ICU. Examples include thyroid storm, hyper, hypoparathyroid states and adrenal insufficiency.
- Become familiar with the risk factors and common pathogens that are associated with nosocomial infections.
- Be able to discuss the mechanism of action as well as the spectrum of antimicrobial activity of the different antibiotic classes. Examples include carbapenams, extended spectrum penicillins and fluoroquinolones.
- Learn the risk factors that result in multiply resistant organisms. Examples include antibiotic dosing, antibiotic synergy and transmission patterns.
- Be able to discuss the factors that result in an immunocompromised state. Examples include malignancy, major trauma and steroids.
- Learn the pathophysiology of traumatic brain injury and neural disease. Examples include knowledge of intracranial pressure monitoring and maneuvers to normalize ICP.
- Be able to discuss the pathophysiology, presentation, and causes of hepatic failure.
- Be able to discuss the pathophysiology, presentation, and causes of renal failure and indications for intermittent dialysis or continuous hemofiltration. Examples include pre-renal failure, acute tubular necrosis, hepatorenal syndrome.
- Be able to discuss end of life ethical issues. Examples include organ donation and withdrawal of support.
- Become familiar and proficient with Ultrasound Techniques from their skills lab during the ICU rotation

Patient Care:

- Create accurate and complete progress and procedure notes, that are always signed, include ID number, date and time.

- Evaluate critically ill patients and make supervised decisions regarding patient care.
- Utilize a daily rounding checklist (FASTHUGGS) to ensure all prophylactic measures against infectious and other complications are in compliance.
- Read plain radiography and CT imaging and show proficiency in reading chest and abdominal X-rays.
- Under appropriate supervision, the resident should be able to
 1. Insert central venous catheters using ultrasound guidance in full compliance with central line precautions bundles
 2. Insert, interpret and troubleshoot pulmonary artery catheters and arterial lines
 3. Insert chest tubes and manage chest drainage sets
 4. Perform bedside ultrasound
- Work on gaining competency (as outlined in the surgery residency blue competency book) in:
 1. Central line placement
 2. Arterial line placement
 3. Dialysis catheter placement
 4. Tube Thoracostomy
 5. Removal of chest tubes
- Resuscitate patients from shock and cardiac arrest.
- Recognize and treat ischemia and arrhythmias on ECG.
- Utilize correct class of anti-arrhythmic, vasodilators and diuretics as they pertain to cardiac disease.
- Correctly determine the protein, caloric, electrolyte, fat and vitamin needs of surgical patients, taking into account their underlying disease process.
- Correctly diagnose and treat gastrointestinal bleeding associated with ulcers, portal hypertension and lower GI sources.
- Diagnose cause and appropriately alter treatment regimens to compensate for hepatic failure.
- Perform the following aspects of ventilator management:
 1. Set up initial and advanced ventilator settings.
 2. Wean patients from ventilator support using the STEER protocol.
- Treat common complications of mechanical ventilation, including pneumothorax and tube thoracostomy.
- Provide cardiovascular support including, but not limited to, invasive monitoring, use of inotropes and vasopressors, management of dysrhythmia.
- Utilize appropriate blood product transfusion indications and alternatives.
- Correctly utilize prophylaxis for stress gastritis in high risk ICU patients.
- Initiate appropriate nutritional support through the optimal route and manage complications of nutritional support.
- Assist in managing patients with intracranial hypertension and cerebrovascular disease.
- Use antibiogram, clinical and pharmacy resources to prescribe appropriate antibiotics.
- Apply concepts of patient isolation and prevent spread of nosocomial infection.
- Initiate appropriate DVT prophylaxis and manage thromboembolism.
- Provide culturally sensitive care and gain skill in providing end-of-life care.
- Understand and provide Patient-Centered and Family-Centered Care.

- Consult the Palliative Care (Howell) service when indicated.

Interpersonal and Communications Skills:

- Gain knowledge in the education of patients and families in post operative and rehabilitative strategies,
- Be expected to interact and communicate with other Critical Care team members in an effective, professional manner to facilitate highly effective care
- Develop skills in providing adequate counseling and informed consent to the critically ill patient and their families.

Practice-Based Learning and Improvement:

- Use books, journal articles, internet access, the PAC Education program: pacep.org, the proceduresconsult.com website (via the BioMed Library), the SCORE website surgicalcore.org/ and other tools available to study topics related to critical care.
- Prepare for and attend daily ICU attending rounds.
- Present a 20 minute presentation with a one-page handout on a topic assigned from the SICU seminar topics list at least twice per month.
- Complete the PBLI at the end of rotation and submit it to the program coordinator

Systems-Based Practice:

- Be able to communicate effectively with patients, families, nurses, and allied health care personnel.
- Be able to use appropriate consult services to improve care of patients in the intensive care unit.
- Participate in the coordination of the rehabilitation of the critically ill patient.
- Demonstrate knowledge of cost-effective critical care.
- Learn how to be an advocate for critically ill patients within the health care system.
- Refer critically ill patients to appropriate practitioners and agencies.
- Facilitate the timely discharge and/or transfer of critically ill patients.
- Function as a member of the ICU team and act as a liaison with each patient's home service to communicate patient progress and plans for care by the ICU team.
- Relate concerns and advice from the patient's home team to the ICU service.
- Be able to work with family to respect patient's end of life wishes, including withdrawal of care in a dignified manner.
- Support and participate in SICU Quality Improvement Programs.

Professionalism:

- Develop a sensitivity of the unique stresses placed on families of patients in the SICU.
- Demonstrate an unselfish regard for the welfare of SICU patients.
- Demonstrate a commitment to carrying out professional responsibilities and adherence to ethical principles.
- Demonstrate firm adherence to a code of moral and ethical values.
- Be reliable, punctual and accountable for own actions.
- Effectively deal with dissatisfied patients and their families.
- Effectively deal with substance abuse patients and their families.

- Effectively deal with indigent patients and their families.
- Understand the benefits and functionality of multidisciplinary health care teams and use a professional and appropriate demeanor when with fellow team members and with other disciplines.
- Keep close track of work hours and report risk of hour overages or absences promptly.
- Guide and educate peers and junior residents and students in critical care topics.

Perform thorough and careful handovers of the Service to team mates when starting or ending duties each day to ensure patient safety and continuity of care

Assessment:

- Patient care and technical skills will be assessed by the attending surgeon on a daily basis
- During the formative evaluation at the end of the rotation

Scheduled Daily Activities:

0630-0800: Pre-round with input from primary teams

0700-0730: Trauma conference, Mondays only

0700-0700: SICU Journal Club (Fridays only)

0800-0830: Assemble rounds materials with SICU Senior

0830-1000: Attending rounds

1030-1130: Daily SICU Seminar with resident presentation, including ACS SCORE curriculum

1230-1430: Simulator / Skills session including Ultrasound

1230-1330: Multidisciplinary Rounds (Thursdays only)

Educational Conferences: Conference attendance is mandatory. You are released from your duties to attend the lecture series.

Trauma conference	Monday 7:00 am
M&M and Grand Rounds	Tuesday 7:00 am
ACS Weekly	Wednesday 6:30 am
Basic Science Conference	Wednesday 7:30 am
Skills Lab (as scheduled)	Thursday 7:00 am
Journal Club (as scheduled)	Thursday 7:00 am
Multidisciplinary Rounds	Thursday 12:30 pm
SICU Journal Club	Friday 7:00 am