Educational Goals & Objectives

The Critical Care rotation will provide the resident with an opportunity to evaluate and manage patients with life-threatening conditions, often affecting multiple organ systems. Training should familiarize the resident both with patient management as a member of a coordinated team and with consultation for critically ill patients on other services. Residents will become skilled in the interpretation of data and performance of procedures necessary to manage these patients, as well as with the social and ethical issues pertinent to acute care and end-of-life care.

Faculty will facilitate learning in the 6 core competencies as follows:

Patient Care and Procedural Skills

I. All residents must be able to provide compassionate, culturally-sensitive, and appropriate care for critically ill patients.
   - R2s should seek directed and appropriate specialty consultation when necessary to further patient care.
   - R3s should supervise and ensure seamless transitions of care within the hospital and at discharge from the ICU.

II. Residents will demonstrate the ability to take a pertinent history and perform a focused physical exam. R1s should be able to differentiate ill from stable patients and appreciate and characterize the following physical findings:
   - Abnormal respiratory patterns
   - Abnormal heart and lung sounds
   - SIRS physiology and symptoms and signs of shock
   - Focal neurologic abnormalities

   R2s should be able to access pertinent complex historical information in a timely fashion and detect more subtle physical findings.

   R3s should be able to independently obtain a focused history and perform a targeted physical exam.

III. Residents will understand the indications, contraindications, complications, limitations, and interpretation of following procedures, and become competent in the their safe and effective use:
   - R1s: arterial blood gas and arterial line placement, BLS and ACLS protocols, central line placement, endotracheal intubation, initial ventilator management, nasogastric tube placement
   - R2s: management of chest tube (placement skill optional), noninvasive ventilation, basic ventilator management beyond 48 hours
   - R3s: ventilator troubleshooting

In addition, residents will demonstrate knowledge of and be able to counsel patients and/or families regarding the indications and contraindications for the following procedures:
• R1s: acute hemodialysis, mechanical ventilation, PEG placement, transfusion
• R2s: tracheostomy, withdrawal of care
• R3s will be able to independently counsel patients on the above issues in the setting of complex socio-medical circumstances, such as the issue of PEG placement in demented patients, or mechanical ventilation in the setting of end-stage systemic illness.

Medical Knowledge

I. R1s will develop an understanding of the pathophysiology, clinical presentation, diagnostic studies and therapy for the following conditions:
• Acute abdominal pain
• Acute organ failure (adrenal, kidney, liver, respiratory)
• Altered mental status and coma
• ARDS
• Cardiac arrest
• Diabetic ketoacidosis
• Disseminated intravascular coagulation
• Hemoptysis
• Heparin-induced thrombocytopenia
• Hypertensive emergency
• Hypo/hyperthermia
• Marked electrolyte abnormalities
• Massive gastrointestinal bleeding
• Massive pulmonary embolus
• Meningitis and encephalitis
• Pancreatitis
• Severe intoxication/overdose and withdrawal syndromes
• Severe stroke
• Shock
• Status asthmaticus
• Status epilepticus
• Thyroid storm and myxedema coma

R2s will be able to assess patients and formulate a differential diagnosis and management plan in the setting of multi-organ involvement.

R3s will be able to independently assess patients, triage patient management tasks appropriately, and delegate to effectively manage multiple critically ill patients.

II. Residents will become knowledgeable in the following issues pertaining to critical care:
• R1s: enteral and parenteral nutrition; pharmacology of opioids, paralytic agents, sedation, and pressors; scoring systems for alcohol withdrawal, sedation, and severity of illness
R2s: diagnosis of brain death; national guidelines for prevention of catheter-associated blood stream infections, deep venous thrombosis, and ventilator-associated pneumonia

R3s: Issues important in the co-management of surgical patients, such as ICP monitoring, abdominal compartment pressure monitoring, conscious sedation, and massive transfusion protocol.

III. Residents will be able to understand the indications for ordering and interpretation of results from laboratory and diagnostic studies, including:

- R1s: arterial blood gas and interpretation of oxygenation and basic acid-base status; analysis of sputum, cerebrospinal, and pleural fluids; chest and abdominal radiographs; computed tomography of head, chest and abdomen; echocardiogram; NT-pro-BNP
- R2s: arterial blood gas and interpretation of complex acid-base status; analysis of joint and peritoneal fluids; bronchoscopy results; magnetic resonance imaging of head, chest and abdomen; lung biopsy
- R3s: interpretation of diagnostic study results in the setting of complex co-morbidities.

Practice-Based Learning and Improvement

I. All Residents should be able to access current critical care clinical practice guidelines from the Society of Critical Care Medicine, journals, and other sources to apply evidence-based strategies to patient care.

II. R2s should develop skills in evaluating new studies in published literature, through Journal Club and independent study.

III. All residents should learn to function as part of a team, including the critical care specialist, nurse, pharmacist, and dietician, and social worker to optimize patient care, and R3s should assume a leadership role.

IV. All residents should respond with positive changes to feedback from members of the health care team.

Interpersonal and Communication Skills

I. R1s must demonstrate written, electronic and verbal communication skills that facilitate the timely and effective exchange of information within the system.

II. R2s must also demonstrate interpersonal skills that facilitate collaboration with patients, their families, and other health professionals.

III. R3s should demonstrate leadership skills to build consensus and coordinate a multidisciplinary approach to patient care.

IV. R3s must become proficient in managing social dynamics, including identifying the power of attorney or surrogate decision maker, resolving conflict among family members with disparate wishes, and patient advocacy.

Professionalism
I. All Residents must demonstrate a commitment to carrying out professional responsibilities.

II. R1s should be able to educate patients in a manner respectful of gender, cultural, religious, economic, and educational differences on choices regarding their care.

III. R2s should be able to counsel patients and families both on diagnostic and treatment decisions and on withdrawal of care.

IV. R3s should be able to provide constructive criticism and feedback to more junior members of the team.

Systems-Based Practice

I. R1s must have a basic understanding that their diagnostic and treatment decisions involve cost and risk and affect quality of care.

II. R2s must be able to discuss alternative care strategies and the cost and risks involved and articulate current quality issues in Critical Care Medicine.

III. R3s must demonstrate an awareness of and responsiveness to established quality measures, risk management strategies, and cost of care within our system.

IV. R3s should work with faculty to assess patient care trends in our ICU and raise best practice issues that may merit further study.

Teaching Methods

I. Supervised patient care in the intensive care unit.
   • Residents will initially be directly observed with patients, to facilitate the acquisition of excellent history taking, physical exam, and procedural skills.
   • As residents become more proficient, they will interact independently with patients and present cases to faculty.
     • Initial emphasis will be on diagnosis and basic management.
     • When residents have mastered these skills, focus will be on medical decision-making, and residents will work with supervising physicians to finalize a care plan.

II. Conferences
   • Daily noon conference
   • Journal club

III. Independent study
   • Journal and Textbook reading TBD by ICU team
   • Online educational resources
     • Society of Critical Care Medicine – register for LearnICU
       http://www.learnicu.org/Pages/default.aspx
     • American Thoracic Society – ATS reading List
     • MKSAP
     • Up to Date
     • Clinical Key

Evaluation
I. Case and procedure logs
II. Mini-CEX bedside evaluation tool
III. Verbal mid-rotation individual feedback
IV. 360 Evaluation
V. Attending written evaluation of resident at the end of the month based on rotation observations and chart review

Rotation Structure
I. Residents should contact the lead intensivist the day prior to determine start time and location. Residents should notify the attending physician promptly if they cannot be available at their assigned time.
II. Residents should spend the majority of their time in the critical care unit, with the exception of required conferences or patient-related time elsewhere in the hospital.
   • Residents will be involved in discussion of patient presentation, generation of a differential diagnosis, development of a treatment plan, and daily patient followup.
   • Case-based learning is most effective. Nightly reading/study should be based on patients seen during the day.
   • When doing consults, the resident should understand the question asked and provide a concise answer.
III. Residents may be asked to do focused literature searches or presentations during the course of the rotation.
IV. Call and weekend responsibilities TBD by the attending physician.
   • Hours worked must be consistent with ACGME requirements and are subject to approval by the Program Director.
V. Residents have noon conferences and should be excused in a timely fashion to attend