LEARNING OBJECTIVES FOR CRITICAL CARE ROTATION, SAN DIEGO VA MEDICAL CENTER

I. PATIENT CARE

Standard Practices in Critical Care

1. Demonstrate the ability to appropriately diagnose and treat patients with interrelated system disorders in the intensive care unit.

2. Be able to place and maintain the following vascular catheters:
   a. Central venous (femoral, subclavian, internal jugular)
   b. Peripheral and femoral arterial
   c. Pulmonary artery

3. Be able to manage airway

4. Apply ACLS protocol

5. Be able to manage patients using arterial, central venous and pulmonary artery catheters, including interpretation of hemodynamic and oximetric data from these devices.

6. Be able to treat thromboembolism and administer prophylaxis.

7. Be able to manage patients requiring analgesia and sedation.

8. Be able to interpret electrocardiograms.

9. Be able to interpret major radiologic tests including chest radiography and abdominal sonography, cholangiography and computed tomography.

10. Be able to properly use the major antimicrobial agents.

Organ Failure Syndromes

1. Be able to define, understand, and utilize severity-scoring systems in critical care.

2. Manage patients with multiple organ failure syndromes.

3. Understand and utilize hemodynamic drugs, including inotropes and pressors.
Hemorrhage and Circulation

1. Be able to apply principles of large volume resuscitation, including colloids, crystalloids and blood products.
2. Be able to manage patients with hemorrhagic shock.
3. Be able to manage patients with coagulation disorders, including disseminated intravascular coagulation (DIC).
4. Understand and utilize component therapies in resuscitation, including blood, plasma products, and platelets.
5. Understand and utilize antifibrinolytic agents.

Pulmonary

1. Be able to apply principles of weaning from acute and chronic ventilatory support.
2. Demonstrate ability to interpret arterial and venous blood gases.
3. Be able to apply concepts and treatment of respiratory failure, acute lung injury (ALI), and acute respiratory dysfunction syndrome (ARDS).
4. Be able to use respiratory pharmacotherapy, including bronchodilators, nebulizers, steroids, and mucolytics.
5. Be able to apply principles for diagnosis and treatment of pulmonary thromboembolism.
6. Be able to perform diagnostic and therapeutic thoracentesis.

Cardiac

1. Be able to manage patients with acute coronary syndromes and myocardial infarction.
2. Be able to manage atrial and ventricular tachy- and bradyarrhythmias, including use of antiarrhythmic drugs.
3. Be able to manage patients with acute and chronic heart failure.
4. Understand pharmacology and be able to use the major cardioactive drugs.

Gastrointestinal

1. Understand causes and be able to manage acute and chronic liver failure.
2. Understand and utilize treatment principles for patients before and following liver transplantation.

3. Understand and treat sequelae of portal hypertension, including ascites, encephalopathy, and gastrointestinal bleeding.

4. Understand and utilize management principles for patients following liver resection and major biliary procedures.

5. Understand and perform diagnostic and therapeutic paracentesis.

**Renal**

1. Understand and manage major acid base disorders.

2. Understand and manage major electrolyte abnormalities.

3. Understand features of acute and chronic renal failure and manage patients with these disorders.

4. Understand indications for use of renal replacement therapies, including hemodialysis and venous hemofiltration, and manage patients receiving these therapies.

**Nutrition and Metabolism**

1. Understand and apply elements of nutritional assessment.

2. Understand and utilize indications for enteral and parenteral nutritional support.

3. Understand and manage complications of nutritional support.

4. Understand and manage diabetic problems in ICU patients.

5. Understand and manage other endocrine problems including thyroid and adrenal diseases.


**Neurologic**

1. Understand and utilize principles of diagnosis and management of coma and other disorders of mentation, including central pontine myelinolysis.

2. Understand and utilize principles of diagnosis and management of seizures.

3. Understand and utilize principles of diagnosis and management of movement disorders, including critical illness polyneuropathy.

4. Understand and utilize principles of radiologic diagnosis of neurologic conditions
II. MEDICAL KNOWLEDGE

1. Be able to discuss techniques for placement, maintenance, and removal of indwelling vascular catheters, including related complications.

2. Be able to discuss risk factors for venous thromboembolism and principles of prophylaxis.

3. Be able to discuss principles of analgesia and sedation in the ICU.

4. Be able to discuss indications for and principles of arterial, central venous and pulmonary artery monitoring.

5. Be able to discuss principles for assessment and measurement of tissue oxygenation.

6. Define and be able to discuss the following syndromes: systemic inflammatory response (SIRS), multiple organ dysfunction MODS, sepsis, severe sepsis.

7. Be able to discuss indications for use and major types of mechanical ventilation.

8. Be able to discuss principles of mechanical cardiac support.

9. Be able to discuss causes, prophylaxis and treatments of bacterial, viral, fungal, and protozoal infections in the ICU.

10. Be able to discuss causes, prophylaxis and treatment of nosocomial respiratory and urinary infections.

11. Be able to discuss principles of diagnosis and treatment of resistant organisms (MRSA, VRE).

12. Be able to discuss the workup of fever in postoperative patients with and without immunosuppression.

13. Be able to discuss the special problems of the immunocompromised patient.

14. Demonstrate knowledge of the principles associated with the diagnosis and management of critically ill patients, including knowledge of simple and complex multiple organ system interactions and abnormalities.

15. Be able to discuss diagnosis and management of ICU-related psychosomatic disorders.

16. Be able to discuss ethical issues related to ICU care.

III. PRACTICE-BASED LEARNING AND IMPROVEMENT

1. Be able to use the medical literature to hone practice indications and guidelines and critically evaluate current management.

2. Understand modern concepts of evidence grading and outcome assessment.
3. Use information technology, on-line resources, expert consultation, and primary texts to expand their knowledge base.

4. Learn to critically evaluate the critical care literature.

5. Apply scientific evidence to decision making.

6. Compare evidence-based practice to commonly taught experience based decision making to develop a personal practice strategy.

7. Use self-reflection in the analysis of the practice experience and perform practice-based improvement activities

IV. INTERPERSONAL AND COMMUNICATION SKILLS

1. Be able to interact effectively and professionally with patients, families, physicians, nurses, and other members of the health-care team.

2. Practice compassionate end-of-life care

3. Provide effective consultation to other physicians and health care professionals

4. Be able to maintain comprehensive, timely, and legible medical records

5. Be able to present information about patient care to their attendings, attendings from other services, fellows, residents, nursing staff, family members and other members of the care team.

6. Effectively conduct patient interviews, obtain consents for treatment or procedures performed, clearly communicate therapeutic plans, share bad news, and explain treatment expectations.

7. Learn techniques to decrease patient and patient family anxiety.

8. Learn effective communication techniques during periods of stress in order to decrease patient and family anxiety.

9. Be able to effectively communicate concerns with members of the healthcare team.

10. Demonstrate effective communication about medical literature and relevant publications applicable to common ICU problems.

11. Learn strategies and techniques for teaching other trainees, including medical students, the principles of critical care medicine.

V. PROFESSIONALISM

1. Learn to work effectively within a multidisciplinary critical care team.
2. Demonstrate respect, compassion, integrity, and kindness in relationships with patients, families, and colleagues.

3. Demonstrate sensitivity and responsiveness to gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behaviors and disabilities.

4. Understand concepts of patient confidentiality and informed consent.

5. Develop the ability to formulate constructive feedback in response to problems encountered in the workplace.

6. Demonstrate behavior and demeanor that adheres to ethical principles, respect, compassion and integrity.

7. Demonstrate sensitivity to patients’ gender, beliefs, needs, and disabilities.

8. Demonstrate commitment to duties towards the patients, the family members and all other parties involved in patient care, including attendings, fellows and residents, nursing and ancillary staff.

9. Learn communication techniques with patients and families of different cultural backgrounds who possibly speak little English.

10. Understand the legal and ethical issues involved in patient consent.

11. Demonstrate a commitment to advocating patient care that is appropriate for their individual needs.

12. Adhere to institutional and departmental standards and policies.

13. Demonstrate ability to appropriately take on, share and delegate patient care responsibilities.

14. Demonstrate a commitment to ongoing professional development.

15. Learn how to discuss and record cases with complications and/or poor outcomes.

16. Be able to effectively balance one’s own personal affairs with clinical and educational duties as outlined in this document.

VI. SYSTEMS-BASED PRACTICE

1. Be able to discuss the VA health care delivery system in order to effectively request the various system resources.

2. Understand and use the indications for ICU admission.

3. Understand and use the criteria for ICU discharge.
4. Becognizant of and practice cost effective health care and resource allocation without compromising the quality of patient care or patient safety.

5. Be able to team with physicians from other specialties and all the other health care providers involved with patient care in order to improve patient outcomes.

6. Learn how to manage consultations and referrals to other services.

7. Understand the complex systems that form the foundation for care of patients suffering from various diseases.

8. Be able to discuss the interactions that take place between primary care teams, intensive care specialists, and nurses in the overall hospital management of these complex patients.

9. Learn how to effectively use information management in patient care.