

GOALS & OBJECTIVES

Critical Care Medicine Clerkship - Adult

OVERARCHING GOALS FOR STUDENTS ON THE CLERKSHIP:

The goal of the Critical Care Medicine Clerkship is to prepare the student to assess and manage critically ill patients. Specifically, our overarching goals are to recognize that exemplary critical care involves the ability to:

- Organize complex data sets to form valid hypotheses regarding the mechanisms and determinants of critical illness (PCMC-3)
- Provide targeted and timely diagnostic and therapeutic interventions (PCMC-3)
- Present complicated patients on rounds in an efficient and clear manner (ECIS-3, PCMC-3)
- Become an effective member of an interprofessional team (SATBC-2b)
- Demonstrate growth in communication skills, professionalism and medical ethics (ECIS-3, PBMR-1, PBMR-3)

CLERKSHIP LEARNING OBJECTIVES

The following are the objectives for the clerkship, mapped to the Feinberg School of Medicine Competencies, the Association for American Medical Colleges Entrustable Professional Activities (EPA) and clerkship assessments (see legend below):

PATIENT-CENTERED MEDICAL CARE

Provide patient care that is compassionate, appropriate and effective with attention to the patients' perspectives, needs, values and comfort

- Elicit histories from critically ill patients and their surrogates (PCMC-1) (EPA-1) ([DO](#), [CPA](#), [SIM](#))
- Perform a focused physical exam (PCMC-2) (EPA-1) ([DO](#), [CPA](#), [SIM](#))
- Explain the indications for intubation, proper placement of an endotracheal tube, and indications for mechanical ventilation (PCMC-4, MKS-3b) (EPA-10) ([SIM](#), [WE](#))
- Execute the skills required to perform intubation on a simulated patient. (PCMC-4) (EPA-12) ([SIM](#), [WE](#))
- Execute the skills required for effective bag-mask ventilation on a simulated patient. (PCMC-4) (EPA-12) ([SIM](#), [WE](#))
- Explain the indications for placement of a central venous catheter (PCMC-4, MKS-3b) (EPA-10) ([SIM](#), [WE](#))
- Execute the skills required to perform central line placement on a simulated patient. (PCMC-4, PCMC-4) (EPA-12) ([SIM](#), [WE](#))
- Explain the indications for placement of an arterial catheter (PCMC-4, MKS-3b) (EPA-10) ([SIM](#), [WE](#))
- Execute the skills required to perform arterial catheter placement on a simulated patient. (PCMC-4) (EPA-12) ([SIM](#), [WE](#))
- Explain the indications for use of "Point of Care Ultrasound" (POCUS) in determining the etiology of shock. (PCMC-4, MKS-3b) (EPA-12) ([SIM](#), [WE](#))
- Execute the skills required to obtain the following POCUS views/images: parasternal long, parasternal short, apical four, IVC, and lung sliding using abbreviated RUSH protocol. (PCMC-4) (EPA-12) ([SIM](#), [WE](#))
- Document patient care appropriately in the EMR (PCMC-5) (EPA-5) ([CPA](#))

MEDICAL KNOWLEDGE & SCHOLARSHIP

Demonstrate sufficient knowledge to provide patient care with appropriate supervision

RESPIRATORY:

- Demonstrate fundamental knowledge of acute respiratory failure including the differential diagnosis and treatment of acute hypoxemic respiratory failure and acute hypercapnic respiratory failure (MKS-1b, MKS-3a, MKS-3b) (EPA-2) ([CPA](#), [SIM](#), [WE](#))
- Elucidate and describe an appropriate strategy to manage patients on mechanical ventilatory support including (MKS-1e, MKS-3a, MKS-3b) (EPA-2) ([CPA](#), [SIM](#), [WE](#)):
 - the use of non-invasive ventilation
 - the basics of volume-controlled and pressure-controlled ventilation

- the trigger, target and cycle of a mechanically delivered breath during
 - assist/control ventilation
 - synchronous intermittent mandatory ventilation
 - pressure support ventilation
 - the ability to measure airway resistance, static compliance of the respiratory system and auto-PEEP
 - the indications for PEEP
 - the relationship between ventilator settings and hemodynamics
 - the relationship between ventilator settings and arterial blood gases
 - strategies to minimize complications of mechanical ventilation
 - the approach to patients with obstructive lung disease and ARDS
 - the process of weaning and extubation
- Recognize the range of pathogens responsible for hospital acquired pneumonia and design an appropriate empiric antimicrobial strategy to treat patients with hospital acquired pneumonia (MKS-1d, MKS- 1e, MKS-3a, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Recognize the range of pathogens responsible for community acquired pneumonia (CAP) and design an appropriate empiric antimicrobial strategy to treat patients with CAP (MKS-1d, MKS- 1e, MKS-3a, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Describe the modalities for source sampling in a patient with pneumonia including sputum culture, bronchoscopic alveolar lavage (BAL) and non-bronchoscopic alveolar lavage (NBBAL). (MKS-1d, MKS-3a) (EPA-2) (CPA, SIM, WE)

HEMODYNAMIC:

- Classify four categories of shock in terms of pathophysiology, hemodynamic profiles files and treatment (MKS-1b, MKS-1e) (EPA-2) (CPA, SIM, WE)
 - hypovolemic shock
 - distributive shock
 - cardiogenic shock
 - obstructive shock
- Choose suitable fluid replacement therapy and vasoactive drug support for patients with circulatory shock (MKS-1e, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Administer appropriate therapy based on data obtained by central venous catheter, pulmonary artery catheters and ultrasound (PCMC-3) (EPA-2) (CPA, SIM, WE)
- List methodologies available to estimate cardiac output (MKS-3a, MKS-1a) (EPA-2) (CPA, SIM, WE)
- Demonstrate knowledge of the Fick formula for cardiac output (MKS-3a) (EPA-2) (CPA, SIM, WE)
- Demonstrate the ability to calculate systemic or pulmonary vascular resistance given the appropriate pressures across the system of interest and cardiac output (MKS-3a) (EPA-2) (CPA, SIM, WE)

NEUROLOGIC:

- Prepare a plan to prevent, diagnose and treat delirium for patients during their ICU stay (PCMC-3) (EPA-2) (CPA, SIM, WE)
- Recognize the importance of withholding of sedatives and analgesics when appropriate (MKS-1e, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Discriminate the appropriate uses of the Glasgow Coma Scale (GCS) and the Richmond Agitation and Sedation Scale (RASS). (MKS-1d, MKS-3a) (EPA 2) (CPA, SIM, WE)

MISCELLANEOUS:

- Prepare a plan of care for patients with gastrointestinal bleeding (PCMC-3) (EPA-2) (CPA, SIM, WE)
- Describe the approach to fever including the diagnosis and management of hospital acquired infections and knowledge of noninfectious causes (MKS-3a, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Recognize the importance of venous thromboembolism prevention in the ICU (MKS-1f) (EPA-2) (CPA, SIM, WE)
- Interpret single and mixed acid-base disorders in critically ill patients (MKS-1d, MKS-3a) (EPA-2) (CPA, SIM, WE)
- Describe the causes of anemia in critically ill patients and the strategy for management of anemic patients (MKS-1b, MKS-3a, MKS-3b) (EPA-2) (CPA, SIM, WE)
- Describe the causes of thrombocytopenia in critically ill patients and the strategy for management of these

patients (MKS-1b, MKS-3a, MKS-3b) (EPA-2) (CPA, SIM, WE)

COMMUNICATION & INTERPERSONAL SKILLS

Demonstration of communication and interpersonal skills and strategies that result in respectful, compassionate and effective information exchange and decision making with patients, families, members of the healthcare team and other colleagues

- Provide verbal patient reports that accurately summarize the patient's condition and need for level of care (PCMC-3) (EPA 6) (CPA)
- Demonstrate organization and effectively communicate thoughts regarding patient care to health care team in order to demonstrate closed loop communication (ECIS-3) (EPA 9) (CPA)
- Communicate effectively with patients and their surrogates, including counseling and education skills (ECIS-1, ECIS-3, PCMC-6) (CPA)

SYSTEM AWARENESS & TEAM-BASED CARE

Strive to provide high-quality health care and advocate for patients within the context of the health care system.

- Function as a "team player" with residents, attendings, nurses, and ancillary staff. (SATBC-2a, SATBC-2b) (EPA 9) (CPA)

PROFESSIONAL BEHAVIOR & MORAL REASONING

Demonstrate a commitment to accountability, excellence in practice, adherence to ethical principles, humanism, altruism, and sensitivity to diversity

- Describe the ethical, legal and medical aspects of withdrawal and withholding of life support and the appropriate use of a DNR order (PBMR-1) (CPA)
- Demonstrate honesty, integrity, respect, and compassion toward all patients, families, students, faculty, and members of the healthcare team (PBMR-3) (CPA)
- Behave with accountability and dependability (PBMR-5) (CPA)
- Anticipate patient care needs and address changing priorities (PBMR-7) (CPA)

COMMUNITY ENGAGEMENT AND SERVICE

Demonstrate knowledge of community factors that influence individual, community and public health and gain perspective and experience through service-learning activities within local or global community settings

- Identify advocacy and equity issues as they arise during the course of your daily clinical care (CES-1, CES-2) (CPA)

CONTINUOUS LEARNING & QUALITY IMPROVEMENT

Demonstrate the ability to accurately assess and improve classroom and clinical performance, as well as to acquire, appraise, and apply scientific evidence to classroom activities and patient care.

- Provide a self-assessment that will evaluate his/her performance on clinical service (CLQI-2) (MID)
- Apply evidence-based medicine (EBM) principles to patient care (CLQI-3) (EPA 7) (CPA)

Methods of Assessment code:

DO -	Direct Observation
CPA -	Clinical Performance Assessment
MID-	Mid-Clerkship Feedback
SIM -	Simulation Practicum/Examination
WE -	Written Examination