

**PULMONARY AND CRITICAL CARE MEDICINE
FELLOWSHIP CURRICULUM
MEDICAL INTENSIVE CARE UNIT**

Description of Rotation

Name: Medical Intensive Care Unit Service

Duration: <Insert>

Location: <Insert>

Call: <Insert>

Description: Fellows rotate on the MICU Service as part of their Critical Care experience. Fellows assigned to this clinical service are responsible for providing supervised comprehensive care of critically ill patients with a wide variety of medical disorders. This includes mastering the diagnostic and therapeutic technology used in critical care, including hemodynamic and non-invasive monitoring, mechanical ventilation, airway management, ultrasound, and bronchoscopy. Fellows will also learn ICU quality improvement, use of protocols and multidisciplinary care, and ethics and end-of-life care. Fellows assigned to this clinical service are responsible for the teaching and supervision of residents and medical students assigned to the service.

Patient mix: <Insert>

Specific duties: <Insert>

Conferences: <Insert>

Educational Goals

The MICU provides an educational forum to support the following general learning goals:

- The diagnosis of severe, life-threatening derangements spanning multiple physiologic systems.
- The ability to triage, organize, and prioritize between multiple problems and patients.
- The ability to recognize and rapidly correct urgent, life-threatening disorders.
- Expertise with the technology and procedures that are some of the tools of modern critical care.
- Use of a multidisciplinary team approach to care, encompassing numerous disciplines and professions.
- Use of protocols and policies as quality assurance and improvement tools.

- Medical ethics and law as it applies to the distribution of costly, limited resources.
- Communication with patients and their families under stress.
- Recognition of the limits of medical care and end-of-life discussions.

Objectives	Evaluation methods
<p>Patient Care</p> <p>All fellows are expected to:</p> <ul style="list-style-type: none"> • Develop expertise in the history and physical examination of the critically ill patient. • Develop expertise in the utilization and interpretation of physiologic data, laboratory testing and radiological studies in the critically ill. • Integrate clinical data in the formation of a comprehensive care plan • Provide compassionate, appropriate, and comprehensive patient care through: <ol style="list-style-type: none"> a. Providing consultation as requested on inpatient or emergency room patients in a timely and appropriate fashion, b. Providing daily management to established patients on the service, c. Coordinating diagnostic and therapeutic procedures (fiberoptic bronchoscopy, thoracentesis, chest tube thoracostomy, venous, arterial, pulmonary arterial line placement, etc). d. Gaining competency in the performance of procedures necessary for the practice of critical care medicine. • Supervise and assist interns, residents, and students caring for patients on the MICU service. <p>Fellowship Year-Specific Objectives:</p> <p>FY-1: First-year fellows are expected to demonstrate the ability to obtain and document an accurate and complete history from patient and/or care taker, and coordinate the clinical efforts of the assigned housestaff team. First-year fellows are expected to perform (with attending supervision and assistance until competent) fiberoptic bronchoscopies, thoracenteses, chest tube placements, and other procedures that may arise on the service. They shall provide updates to patients and their families and participate in family discussions about prognosis and end of life issues. They will also communicate with consultants, therapists, and other professionals regarding patients on the service.</p> <p>FY-2 & 3: Senior (2nd and 3rd-year, or returning) fellows are additionally expected to demonstrate the ability to independently lead daily rounds. They are expected to anticipate and pro-actively address potential problems with regards to patient care. Senior fellows are expected to perform (with attending supervision and assistance) all required medical critical care procedures that may arise on the service. They will lead family meetings and end-of-life discussions,</p>	<p><add cells as needed and abbrv. for evaluation types></p>

as appropriate. They will demonstrate understanding of the role of policy and care protocols as an instrument of patient safety, as well as role model safe care through maintenance of isolation procedures, time-outs, etc.

Medical Knowledge

All fellows are expected demonstrate knowledge of current and classic literature, clinical management skills, and the scientific foundations of:

- Circulatory disorders
- Shock syndromes
- Cardiovascular diseases
- Sepsis and sepsis syndrome
- Hypertensive emergencies
- Acute and chronic respiratory failure
- Metabolic disturbances, including overdoses and intoxications
- Multi-organ system failure
- Electrolyte and acid-base disorders
- Metabolic, nutritional, and endocrine effects of critical illnesses
- Hematologic and coagulation disorders associated with critical illness
- Management of the immunosuppressed patient
- Management of anaphylaxis and acute allergic reactions
- Management of critical illness in pregnancy.
- Use of paralytic agents and sedative and analgesic drugs
- Psychosocial and emotional effects of critical illnesses on patients and their families
- Management of end of life issues and palliative care
- Pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness
- Administration and management of a MICU.
- Ethical, economic, and legal aspects of critical illness
- Working effectively as a member of a multidisciplinary team.
- Recognition and management of the critically ill from disasters, such as caused by chemical and biological agents.
- Quality improvement and patient safety in the ICU, including recognition and prevention of nosocomial and iatrogenic injury.

Fellows will also acquire competence in these technical skills; required procedures will be logged in sufficient number and detail to support competence to perform the procedures independently by the completion of fellowship.

- Airway management by bag/mask and intubation.
- Invasive and non-invasive mechanical ventilation, to include initiation, maintenance, and weaning of ventilatory support, respiratory care techniques, and withdrawal of mechanical ventilatory support
- Use of reservoir masks and CPAP for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry

- Management of pneumothorax (needle insertion and drainage system)
- Insertion of chest tubes and drainage systems
- Insertion of arterial, central venous, and pulmonary artery balloon flotation catheters
- Emergency cardioversion
- Interpretation of intracranial pressure monitoring
- Operation of bedside hemodynamic monitoring systems and interpretation of data from such systems
- Nutritional support

Although they need not perform these procedures, Fellows will demonstrate knowledge of the indications for and complications of:

- Pericardiocentesis
- Transvenous pacemaker insertion
- Percutaneous needle biopsies
- Renal replacement therapy

Fellowship Year-Specific Objectives:

FY-1: First-year fellows are expected work in conjunction with the attending physician in leading daily rounds and providing bedside teaching. They should suggest the diagnostic and therapeutic approaches to MICU patients with input from the attending as needed. They should also develop skills in radiographic interpretation. First-year fellows should supervise and teach (with attending supervision and assistance) procedures to the junior housestaff and/or medical students assigned to the service.

FY-2 & 3: Senior (2nd and 3rd-year) fellows will be able to independently lead daily rounds and provide bedside teaching. They should formulate comprehensive diagnostic and therapeutic approaches to MICU patients with minimal attending input. Senior fellows must demonstrate the ability to reliably generate an extensive differential diagnosis, generate a patient care plan, and achieve competence in the required MICU procedures by the completion of fellowship. Senior fellows are also expected to supervise and teach procedures to the junior housestaff with minimal attending supervision and assistance.

Practice-Based Learning and Improvement

Fellows are expected to:

- Evaluate their own strengths, weaknesses, and goals to formulate a personal learning plan for each ICU environment
- Consider how their personal values, ethics, and culture influence their approach to patient care and communications
- Use current medical literature and databases to improve individual patient

- care using the best available evidence.
- Use their knowledge of physiology and basic science to guide care decisions where clinical trial data is unavailable or not applicable
- Use medical literature and professional society guidelines to critique and improve the standards of care in the MICU
- Evaluate the risks, expense, and benefits of equipment and interventions used in the MICU and on the patients under their care
- Prepare scholarly didactic presentations on MICU topics as requested for house staff, nursing, or peers
- Disclose errors to patients or family members, as necessary and appropriate
- Review pathology or autopsy specimens from MICU patients when available

Fellowship Year-Specific Objectives:

FY-1: First-year fellows will pursue independent reading on each patient encounter. They should self-reflect on performance and develop learning plans with assistance from supervising faculty. First-year fellows should incorporate formative feedback into daily practice and seek feedback from faculty members on performance.

FY-2 & 3: Senior (2nd and 3rd-year) fellows are expected to be able to implement results of in-training exams or self-reflection to guide self-directed learning. Senior fellows should perform efficient literature searches and evaluate manuscripts based on EBM principles, including effective search techniques, awareness of study design, influence of chance, bias, and confounders. Senior fellows should demonstrate effective self-directed learning to faculty members.

Systems Based Practice

Fellows are expected to:

- Work as an effective member of the MICU team in all interdisciplinary activities (rounds, primary care, consultations, and procedures) within his/her assigned patient care responsibilities
- Learn about the natural history of critical illness as patients recover and transition through the medical center, including the impact of critical illness on family, employment, and long term physical and mental disability
- Demonstrate awareness of the ethical and legal aspects of critical illness.
- Demonstrate knowledge of the societal and individual economic consequences of severe illness, as indicated by appropriate use of expensive services, consideration of cost as well as benefits, appropriate triage of MICU bed space, and timely discussions of limitations of medical care
- Consider how limitations of the health care system prior to MICU admission contributed to the severity of illness
- When possible, contribute to ongoing research initiatives in the MICU
- Organize and work effectively as a member of a multidisciplinary team, coordinating the consultations with the nursing services and other hospital ancillary services (PT, OT, RT, Nutrition Service, etc)
- Supervise and teach (with attending supervision and assistance) pulmonary

- procedures to the junior housestaff.
- Master the information technology systems in use in their MICU for patient information, computerized order entry, radiology, etc.
- Efficiently and effectively request consultation from subspecialty services
- Coordinate the procurement of medical records from other treating physicians and sources when relevant to the patient’s ICU course.

Fellowship Year-Specific Objectives:

FY-1: First-year fellows are expected to be able to coordinate care for MICU patients. They should participate in MICU quality improvement committees or initiatives. They should demonstrate their ability to obtain relevant current and old medical records, and suggest cost-efficient and effective diagnostic and therapeutic plans. They should recognize the need for consultation from ancillary services or other fields of medicine when needs exceed the expertise of the MICU team.

FY-2 & 3: Senior fellows should avail themselves of opportunities to be involved in the administration of the MICU. They will demonstrate leadership and management skills, including quality improvement, while leading rounds. Senior fellows should demonstrate and incorporate thorough understanding of E&M documentation guidelines and billing processes. Care plans should demonstrate consideration of the place of the MICU within the larger context of the health system. Senior fellows should be able to describe the research projects underway in the MICU to provide new discoveries, advance clinical science, or improve local practice.

Professionalism

Fellows are expected to:

- Consistently demonstrate respect, altruism, integrity, honesty, compassion, and empathy for critically ill patients and their families
- Practice ethical behavior both within and outside of the hospital
- Demonstrate respect for patients by providing the highest quality care despite differences of culture, gender, race, or disability
- Show sensitivity to the psychosocial and emotional effects of pulmonary illnesses
- Demonstrate a commitment to excellence and continuous professional development
- Demonstrate a commitment to patients and society that supersedes personal needs
- Model professional behavior for the ICU team including punctuality, respectful dress and demeanor, preparation for rounds and conferences and attendance at conferences

Fellowship Year-Specific Objectives:

FY 1-3: All fellows are to respond promptly and politely to pages, phone calls, and email. They must respect patient privacy and autonomy at all times. They must show respect for patients and other health care personnel. In both research and clinical care, fellows must uphold principles of truth and integrity, and reliably put patients' interests ahead of own. While acknowledging that fellows' free time is their own, they are expected to recognize that off-campus or on-line behavior reflects not only on them, but also on the community of professionals of which they are a part.

FY 2&3: Senior fellows will be a role model for more junior fellows and house officers. If appropriate, they will counsel house staff who are considering careers in Pulmonary and Critical Care. They will also meet with their attendings to discuss employment opportunities and professional letters of reference.

Interpersonal and Communication Skills

Fellows are expected to:

- Communicate appropriately and professionally with patients and families
- Communicate (verbally and in writing) appropriately with physicians, nurses and other members of the health care team including completion of comprehensive, timely and legible medical records
- Demonstrate effective communication during presentations at lectures, seminars, or conferences

Fellowship Year-Specific Objectives:

FY-1: First-year fellows are expected to respond promptly to consultation requests and obtain a clear reason for consultation. After discussion with their attending, fellows should promptly contact the requesting physician to discuss findings and recommendations. First-year fellows should demonstrate an understanding of a patient's perspective and share relevant information to patients, medical decision makers, and other key health care providers. Fellows should participate in family meetings and discussions regarding end-of-life care, palliation, and patient prognosis or preferences.

FY-2 & 3: Senior fellows should function as an effective team leader and coordinate team communication to optimize patient care. They should be able to integrate bedside teaching into work rounds. Written and oral communication should require little editing or modification from the attending physician. Senior fellows may also demonstrate effective communication skills through writing scholarly abstracts or articles or by presenting posters at professional meetings.

Educational methods

Materials: Patients admitted to the MICU or on whom consultation by the MICU service is requested. *<Insert other written materials, on-line sources, syllabi, etc.>*.

Faculty role: *<Insert>*

Conferences: *<Insert>*

Evaluation

<Insert list of evaluation methods used in this rotation. Methods can be coded with abbreviations, which are then entered into the table of objectives to link each objective to evaluation methods. >

Schedule and work hours

Schedule: *<Insert weekly schedule; include if fellows must attend clinic>*

Work hours: Fellows are expected to adhere to ACGME guidelines for work hours which require fewer than 80 hours per week in the hospital, at least 4 days in 28 out of the hospital, and no more than one night in three taking call in the hospital. If patient care duties keep them in the hospital late into the night when not on call, they should have 10 hours out of the hospital before reporting for duty the next morning. Fellows should inform their attending when they must come in late due to prolonged evening hours. Fellows are also expected to reinforce these rules with the residents and to report any deviations to the attending.