General Program Goals and Objectives:
1. Provide the fellow with a properly organized program with progressively more responsibility in the care of the critically ill patient.
2. Provide adequate training to enable the fellow to provide definitive diagnosis and institute appropriate treatment for the critically ill patient, and to demonstrate the application of osteopathic principles and practice as it relates to critical care medicine.
3. Provide training in critical care medicine that may be taken as a two year program following completion of a three year internal medicine residency or as an additional year to supplemental residency training in the subspecialty areas of cardiology, pulmonary medicine, or nephrology, or combined EM/IM residency, or finally as a two year program following training in internal medicine subspecialty other than cardiology, pulmonary medicine, or nephrology.
4. Provide adequate training of fellows to become board eligible for the critical care medicine certifying examination given by the American Osteopathic Board of Internal Medicine.

Core Curriculum:
The Core Curriculum of the Fellowship is designed to provide Fellows with clinical experiences in the management of a broad spectrum of critical care illnesses and to develop cognitive skills in the following areas of critical care medicine:

1. Cardiovascular
   A. Shock
      - Hypovolemic
      - Cardiogenic
      - Traumatic
      - Distributive
      - Obstructive
   B. Myocardial Infarction
   C. Arrhythmias
   D. Pulmonary Embolism
   E. Pulmonary Edema
   F. Tamponade
   G. Valvular Disease
   H. Cardiomyopathies
   I. Vasoactive and inotropic therapy
   J. Complications of devices and artificial hearts
   K. Angioplasty
   L. Hemodynamic interpretations
   M. Thrombolytic therapy
   N. Management of Open Hearts
O. Hypertension

2. Respiratory
   A. Acute Respiratory Failure
      • Acute Respiratory Distress Syndrome
      • Hypercapnic
      • Neurogenic
   B. Asthma
   C. Smoke Inhalation
   D. Aspiration
   E. Flail Chest
   F. Infections
   G. Upper Airway Obstruction
   H. Drowning
   I. PFTS
   J. Oxygen Therapy
   K. Hyperbaric Oxygen Therapy
   L. Mechanical Ventilation
      • Pressure and Volume Vents
      • PEEP, IMV, CPAP, HFV, Inverse Ratio, PSV, Negative Pressure
      • Ventilation Indications
      • Barotrauma
      • Weaning
      • Extracorporeal Membrane Oxygenation
   M. Airway Maintenance
      • Emergent Management
      • Intubation
      • Tracheostomies
      • Long-term Intubations
   N. Ventilatory Muscle Physiology

3. Renal
   A. Fluid and Electrolytes
   B. ARF
   C. Na and K Balance
   D. Acid Base Disorders
   E. Hemodialysis
   F. Artero-venous Hemofiltration

4. Central Nervous System
   A. Coma
      • Metabolic
      • Trauma
      • Infectious
      • Masses
      • Anoxic
      • Drug Overdose (barbs, narcs,tranqs,organophosphates)
   B. Hydrocephalus
   C. Psychiatric Emergencies
D. Neurosurgical Management
E. Brain Death
F. Management of Persistent Vegetative State

5. Metabolic and Endocrine
   A. Colloid Osmotic Pressure
   B. Alimentation
      ▪ Enteral
      ▪ Lipid
      ▪ Hypertonic Glucose
      ▪ Amino Acid Solutions
   C. Endocrine
      ▪ Thyroid
      ▪ Adrenal
      ▪ ADH Disorders
      ▪ DM
         ▪ Ketotic
         ▪ Hypoglycemic
         ▪ Hyperosmolar
      ▪ Pheochromocytoma
      ▪ Insulinoma
      ▪ Ca and Mg

6. Infectious Disease
   A. Antibiotics
   B. Infection Control
   C. Anaerobic Infections
   D. Sepsis, Systemic Inflammatory Response Syndrome, Severe Sepsis
   E. Tetanus
   F. Nosocomial Infections
   G. Adverse Reactions to Antibiotics
   H. HIV
   I. Risks to Health Care Workers

7. Hematological
   A. Defects in Hemostasis
      ▪ Thrombocytopenia
      ▪ Disseminated Intravascular Coagulation
   B. Anticoagulation
   C. Principles of Blood Component Therapy
      ▪ Platelets
      ▪ Packed Red Blood Cells
      ▪ Fresh Frozen Plasma
      ▪ Specific Coagulation Factor Concentrates
      ▪ Albumin
      ▪ Stroma-free Hemoglobin
      ▪ White Blood Cell Transfusion
      ▪ Cryoprecipitate
   D. Acute Hemolytic Disorders
E. Acute Neoplastic Syndromes
F. Immunosuppression
G. Sickle Cell Disease
H. Plasmapheresis

8. Gastrointestinal/Genitourinary
   A. Pancreatitis
   B. GI Bleed
   C. Hepatic Failure
   D. Toxic Megacolon
   E. GI Perforations
   F. Ruptures Esophagus
   G. Inflammatory Small Bowel Disease
   H. Mesenteric Ischemia
   I. Obstructive Uropathy
   J. Urinary Bleeding
   K. Toxemia of Pregnancy
   L. Perioperative Management of Patients Undergoing GI/GU Procedures
   M. Stress Ulcer Prophylaxis
   N. Drug Dosing in Hepatic Failure

9. Immunology and Transplantation
   A. Principles of Organ Donation
      (Donation, procurement, preservation, allocation, implantation national organization)
   B. Immunosuppression
   C. Indications and Post-operative Care

10. Trauma/Burns
    A. Initial Approach to the Management of Trauma
       - CNS Trauma
       - Skeletal Trauma
       - Chest Trauma
         - Blunt
         - Penetrating
         - Cardiac
         - Abdominal Trauma
       - Crush Injury
    B. Burns

11. Monitoring, Bioengineering and Biostatistics
    A. Prognostic Indices; i.e., APACHE, SAPS
    B. Principles of EKG Monitoring
    C. Invasive Hemodynamic Monitoring
       - Display Techniques
       - Principles of CVP and PA Catheterization and Monitoring
       - Assessment of Cardiac Function
    D. Non-invasive Hemodynamic Monitoring
    E. Electrical Safety
    F. Thermoregulation
G. Intracranial Monitoring
H. Respiratory Monitoring
I. Metabolic Profiling; i.e., Metabolic Cart
j. Use of Computers in the ICU
12. Administrative and Management Principles and Techniques
A. Organization and Staffing in the ICU
B. Standards for Special Care Units-JCHO
C. Medical Record Keeping
  ▪ SOAP
  ▪ Manual versus Computer
  ▪ Organization of Medical Records
  ▪ HIPAA Regulations
D. Priorities in the Care of the Critically Ill or Injured
E. Collaborative Practice Principles
F. Participation in Relevant Hospital Committees
G. Design of Special Care Units
H. Emergency Medical Systems in Pre-hospital Care
I. Quality Improvement
J. Principles of Triage
13. Education Program
A. Patient Care: Should be appropriate, compassionate and effective
B. Medical Knowledge: Candidates’ medical knowledge will be evaluated via presentation of the cases seen the night before
C. Practice-based Learning: Investigations and evaluation of residents own patient care
D. Interpersonal Skills: Effective information exchange between resident and patients’ family and other member of the team
E. Professionalism: Commitment to carrying out professional responsibilities; sensitivity to diverse patient population
F. Systems Based Practice: Understanding of the larger context of the system of health care delivery in the US, use of the system to benefit the patient, use of social services, Illinois Surrogate Act
G. Application of Osteopathic Principles and Practice as it relates to the practice of critical care medicine
14. Metabolism
A. Uptake
B. Metabolism
C. Excretion
15. Ethical and Legal Aspects of Critical Care Medicine
A. Death and Dying
B. Foregoing Life-sustaining Treatment
C. Standards of treatment for the Handicapped and Retarded
D. Right to Refuse Therapy
E. Living Wills and Advance Directives
16. Psychosocial Aspects: Awareness of how illness may affect the patient and family
17. Medical Economics

**Basic Minimum Technical Competencies/Procedural Skills:**

1. **Airway Management**
   A. Oral and Nasal Intubation
   B. Tracheotomy

2. **Breathing and Ventilation**
   A. Bag and Mask
   B. PEEP, IMV, CMV, CPAP, BiPAP, PSV, APRV
   C. Bronchodilators
   D. Suctioning
   E. Chest PT
   F. Fiberoptic Laryngotracheobronchoscopy
   G. Weaning
   H. PTX
   I. Operating MV
   J. Measurement of ET Cuff Pressure
   K. Bedside Pulmonary Function Tests
   L. Oxygen Therapy

3. **Circulation**
   A. Arterial Puncture
   B. Insertion of Monitoring Lines
      - CPV
      - Arterial
      - PA Cath
   C. Pericardiocentesis
   D. Management of Arterial and Venous Embolus
   E. TVP
   F. CO Determinations
   G. Use of Computers to Calculate Hemodynamic Variables
   H. EKG
   I. Infusion of Pressors
   J. Infusion Pumps
   K. Cardioversion
   L. Intra-aortic assist devices
   M. Non-invasive cardiovascular monitoring
   N. Transcutaneous Pacing

4. **CNS**
   A. Lumbar Puncture
   B. Management of Increased Intracranial Pressure

5. **Renal**
   A. Management of Peritoneal Dialysis
   B. Manage Continuous AV and VV filtration
   C. Insertion of Hemodialysis Catheters

6. **GI**
A. Insertion of Transesophageal Devices
B. Prevention of Upper GI Bleeding

7. Hematology
   A. Utilization of Blood Components
   B. Management of Massive Transfusions
   C. Auto-transfusion
   D. Ordering and Interpretation of Coagulation Profiles

8. Infectious Disease
   A. ICU Sterility Techniques and Procedures
   B. Sampling, Staining, Interpretation of Cultures: blood, urine, sputum, body fluids
   C. Interpretation of Antibiotic Levels

9. Metabolism/Nutrition
   A. Tube Feeding
   B. Parental Nutrition
   C. Monitoring and Assessment of Nutrition
   D. Maintenance of Temperature Homeostasis

10. Monitoring and Bioengineering
    A. Utilization, Calibration and Zeroing of Transducers
    B. Use of Amplifiers and Recorders
    C. Trouble-shooting Equipment
    D. Correcting Electrical Hazards

11. Trauma
    A. Temporary Immobilization of Fractures
    B. G Suit
    C. Use of Special Beds
    D. Peritoneal Lavage

12. Intensive Care Unit Laboratory
    A. Blood Gas Analysis
    B. Calculation of O2 Content, Shunt, A-a Grads, VO2, SVR, PVR

**Patient Care Experience:**
1. Exposure to patients with:
   - Hemodynamic instability
   - Respiratory insufficiency
   - Acute Neurologic insults
   - Acute renal insufficiency
   - Acute endocrine emergencies
   - ODS
   - Coagulation disorders
   - Serious infections
   - Nutritional inadequacy
   - Acute trauma

Possible Additional Experiences:
- Neonatal ICU
- Neurosurgical IC Patients
- Cardiac Catheterization
- PFT
- Respiratory Therapy
- Burns
- Dialysis
- Shock Trauma
- OR Anesthesia
- Coronary Care Patients
- Pediatric ICU
- Infectious Disease
- Pulmonary Medicine
- Nutritional Support
- CV Surgery
- Transplant Patients
- Obstetrical IC Patients

**Specific Program Content:**
Daily teaching rounds are provided for the fellows by the Associate Program Director. A minimum of two conferences will be held weekly which will include case-based discussion, basic science didactic lectures, course on study design and analysis, mini-course in rational thinking and logic, mini-course in medical ethics and board review.