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AMERICAN OSTEOPATHIC ASSOCIATION

**Specific Basic Standards for  
Osteopathic Fellowship Training in  
Pulmonary / Critical Care Medicine**

**American Osteopathic Association  
and  
American College of Osteopathic Internists**

BOT Rev. 2/2011

These specific basic standards are part of the *Common Basic Standards for Fellowship Training in Internal Medicine Subspecialties*, which govern and define training in all medical subspecialties. These requirements are in addition to all requirements in the Common Basic Standards.

#### **IV INSTITUTIONAL REQUIREMENTS**

- 4.1 The base institution or an affiliate must have critical care units that are located within the hospital and are designed specifically for the care of critically ill patients and in separate locations or in combined facilities, provide the equivalent of a medical intensive care unit, a surgical intensive care unit and a coronary care unit.
- 4.2 The base institution or an affiliate must have equipment for monitoring patients with critical illnesses including ventilators, equipment for bedside hemodynamic monitoring and right heart catheterization, bedside ultrasound and a fluoroscopic room for catheter placement.
- 4.3 The base institution or an affiliate must have faculty members who participate in the educational program in nephrology, gastroenterology, pulmonary, cardiology, infectious disease, hematology, oncology and geriatric medicine who are certified in their specialty by the AOA or ABIM.
- 4.4 The base institution or an affiliate must have faculty members in anesthesiology, neurology and neurosurgery who are certified in their specialty by the AOA or American Board of Medical Specialties (ABMS) Board.
- 4.5 The base institution or an affiliate must have faculty members who participate in the educational program in general surgery, thoracic surgery, urology, orthopedic surgery, obstetrics-gynecology, neurology, neurosurgery, emergency medicine, anesthesiology, cardiovascular surgery and vascular surgery.
- 4.6 In critical care units to which a fellow is assigned, an average census of at least five patients per fellow is required.
- 4.7 The institution must have nutritional support services.
- 4.8 The base institution or an affiliate must have a pulmonary laboratory that provides spirometry, lung volume determination and diffusion studies.
- 4.9 The base institution or an affiliate must have an accredited respiratory therapy department under the technical direction of certified respiratory therapists that provides 24 hour arterial blood gas service and ventilator care.
- 4.10 The base institution or an affiliate must have a 24-hour fiberoptic bronchoscopy service.
- 4.11 The base institution or an affiliate must have a nuclear medicine department.
- 4.12 The base institution or an affiliate must have a thoracic surgery service.

#### **V PROGRAM REQUIREMENTS AND CONTENT**

##### **A. Program Duration**

- 5.1 The fellowship training program is a full-time training program of a minimum of 36 months in duration.

## **B. Medical Knowledge**

- 5.2 The fellow must have learning activities in physiology, pathophysiology, diagnosis and treatment of critical disorders of the cardiovascular, respiratory, renal, gastrointestinal, genitourinary, neurologic, endocrine, hematologic, musculoskeletal and immune systems and of infectious diseases.
- 5.3 The fellow must have learning activities in physiology, pathophysiology, diagnosis and treatment of electrolyte and acid-base disorders.
- 5.4 The fellow must have learning activities in metabolic, nutritional and endocrine effects of critical illnesses.
- 5.5 The fellow must have learning activities in hematologic and coagulation disorders associated with critical illnesses.
- 5.6 The fellow must have learning activities in critical obstetric and gynecologic disorders.
- 5.7 The fellow must have learning activities in management of the immunosuppressed patient.
- 5.8 The fellow must have learning activities in management of anaphylaxis and acute allergic reactions.
- 5.9 The fellow must have learning activities in trauma.
- 5.10 The fellow must have learning activities in drug metabolism and excretion in critical illness.
- 5.11 The fellow must have learning activities in the use of paralytic agents.
- 5.12 The fellow must have learning activities in ethical, economic and legal aspects of critical illness.
- 5.13 The fellow must have learning activities in psychosocial and emotional effects of critical illness on patients and their families.
- 5.14 The fellow must have learning activities in iatrogenic and nosocomial problems in critical care medicine.
- 5.15 The fellow must have learning activities in Occupational Safety and Health Administration (OSHA) regulations and universal precautions for protection of health care workers.
- 5.16 The fellow must have learning activities in obstructive lung disease, including asthma, bronchitis, emphysema, bronchiectasis, transplant/reduction surgery, and cystic fibrosis.
- 5.17 The fellow must have learning activities in pulmonary malignancy, both primary and metastatic.
- 5.18 The fellow must have learning activities in pulmonary infections, including tuberculosis, fungal and those in the immunocompromised host.
- 5.19 The fellow must have learning activities in diffuse interstitial lung disease.
- 5.20 The fellow must have learning activities in pulmonary vascular disease including primary and secondary pulmonary hypertension, vasculitis and pulmonary hemorrhage syndromes.
- 5.21 The fellow must have learning activities in occupational and environmental lung diseases.
- 5.22 The fellow must have learning activities in iatrogenic respiratory diseases including drug-induced lung disease.

- 5.23 The fellow must have learning activities in acute lung injury including injuries from radiation, toxic inhalation, and trauma.
- 5.24 The fellow must have learning activities in pulmonary manifestations of systemic diseases including collagen vascular diseases.
- 5.25 The fellow must have learning activities in respiratory failure including acute respiratory distress syndromes, acute and chronic respiratory failure in chronic obstructive pulmonary disease, and in neuromuscular respiratory drive disorders.
- 5.26 The fellow must have learning activities in disorders of the pleura and the mediastinum.
- 5.27 The fellow must have learning activities in genetic and developmental disorders of the respiratory system.
- 5.28 The fellow must have learning activities in sleep disorders.

### **C. Patient Care**

- 5.29 The fellow must have training and experience in the evaluation of oliguria.
- 5.30 The fellow must have training and experience in the management of massive transfusions.
- 5.31 The fellow must have training and experience in the management of hemostatic defects.
- 5.32 The fellow must have training and experience in the management of parenteral and enteral nutrition.
- 5.33 The fellow must have training and experience in the interpretation of antibiotic levels and sensitivities.
- 5.34 The fellow must have training and experience in the pharmacokinetics.
- 5.35 The fellow must have training and experience in pulmonary function tests to assess respiratory mechanics, gas exchange and respiratory drive, including spirometry, flow volume studies, lung volumes, diffusing capacity, distribution of ventilation, airways resistance, lung compliance, arterial blood gas analysis, and exercise studies to include, at minimum: indications; contraindications; complications; limitations; interpretation and evidence of competent performance.
- 5.36 The fellow must have training and experience in thoracentesis, flexible fiberoptic bronchoscopy and related procedures, endotracheal intubation, percutaneous arterial puncture and cannulation, central venous catheterization, and pulmonary artery balloon catheterization to include, at minimum: indications; contraindications; complications; limitations, interpretation and evidence of competent performance
- 5.37 The fellow must have training and experience in the following to include, at minimum: indications; contraindications; complications; limitations, interpretation and evidence of competent performance:
  - a. Calibration and operation of hemodynamic recording systems.
  - b. Ventilatory support, including pressure-cycled, volume-cycled, time-cycled and flow-cycled mechanical ventilation.
  - c. Weaning and respiratory care techniques.
  - d. Management of pneumothorax (needle insertion and drainage system)

- e. Examination and interpretation of sputum, bronchopulmonary secretions, pleural fluid and lung tissue for infectious agents, cytology, and histopathology.
- 5.38 The fellow must have training and experience in the following to include, at minimum: indications; contraindications; complications; limitations and interpretation:
- a. Imaging procedures including chest roentgenograms, pet interd, computed axial tomograms, radionuclide scans, and pulmonary angiograms
  - b. Sleep studies
  - c. Inhalation challenge studies
  - d. Allergy skin testing
  - e. Cardiopulmonary stress testing.

#### **D. Systems-Based Practice**

- 5.39 The program must provide opportunities for all the fellows to acquire those skills needed to direct a critical care unit and to work effectively as a member of a multidisciplinary team.

#### **E. Rotational Curriculum**

- 5.40 The fellow must have at least 6 months of training in medical and cardiac intensive care units.
- 5.41 Additional training must be provided in dialysis techniques and in medical emergencies that occur in endocrinology, gastroenterology, hematology, oncology, infectious diseases and neurology.
- 5.42 Fellows must have a rotation that will allow them to care for patients that have had open heart surgery.
- 5.43 During the first year of training, specific rotations in endotracheal intubation techniques, mechanical ventilatory support, central venous access techniques, hemodynamic monitoring and support and management of acute renal failure are required.

#### **F. Procedural Training Requirements**

- 5.44 The fellow must become competent in establishment and maintenance of an open airway in nonintubated, unconscious, paralyzed adults.
- 5.45 The fellow must become competent in pressure-cycled, volume-cycled, time-cycled, and flow-cycled mechanical ventilation.
- 5.46 The fellow must become competent in the use of reservoir masks and continuous positive pressure masks for the delivery of supplemental oxygen, humidifiers, nebulizers and incentive spirometry.
- 5.47 The fellow must become competent in management of pneumothorax (needle insertion and drainage systems) and chest tube insertion.
- 5.48 The fellow must become competent in maintenance of circulation with arterial puncture and blood sampling, insertion of central venous, arterial, and pulmonary artery balloon flotation catheters, basic and advanced cardiopulmonary resuscitation, and cardioversion.
- 5.49 The fellow must become competent in thoracentesis.

- 5.50 The fellow must become competent in the use of monitoring equipment including the utilization, zeroing and calibration of transducers and the use of amplifiers and recorders.
- 5.51 The fellow must become competent in cardiac output determinations by thermodilution and other techniques.
- 5.52 The fellow must become competent in calculation of oxygen content, intrapulmonary shunt and alveolar arterial gradients.
- 5.53 The fellow must learn the indications, contraindications, complications, and limitations of pericardiocentesis.
- 5.54 The fellow must learn the indications, contraindications, complications, and limitations of transthoracic and transvenous pacemaker insertion.
- 5.55 The fellow must learn the indications, contraindications, complications, and limitations of peritoneal dialysis.
- 5.56 The fellow must learn the indications, contraindications, complications, and limitations of peritoneal lavage.
- 5.57 The fellow must learn the indications, contraindications, complications, and limitations of chest tube insertion.
- 5.58 The fellow must learn the indications, contraindications, complications, and limitations of intracranial pressure monitoring.

#### **G. Ambulatory Clinic**

- 5.59 The fellow must attend a continuity clinic for a minimum of four hours per week, 46 weeks per year.
- 5.60 The fellow must maintain a log of all outpatient cases.