

## **In the Name of God**

### **Islamic Republic of Iran Ministry of Health and Medical Education Deputy for Education**

## **Critical Care Medicine**

### **Degree: Fellowship**

#### **Program Description (Introduction):**

Due to Improvement in quality of care and advances in internal medicine and surgical skills in IRI, survival of patients with multiple problems and multiple organ dysfunctions has been improved. Intensive care science is a field of medicine developed for taking care of critically ill patients with multi-organ failure. Although, currently, anesthesiologists and/or internists are responsible for providing services to such patients in ICUs but because of needing more practical and specialized skills based on Up to Date techniques and technologies, there was a strong need for Critical Care Medicine fellowship training in Islamic Republic of Iran. Also strategic plan of Anesthesiology approved by the Secretariat of Medical Education Council has emphasized on the special attention to development of an educational program for intensive care Medicine. So a committee consisting of relevant experts in educational activities in ICUs was established in 2004 and after several meetings during a year the program of this program was prepared. This Committee will welcome all experts and academics' views in next version of this program.

#### **Training Program definition & Duration:**

Adult intensive care course is a multidisciplinary course derived from anesthesiology and internal medicine and graduates of this course are working in the field of diagnosis, care and treatment of a wide range of clinical problems in patients with severe and life-threatening failure in one or multiple organs. Students are responsible to maintain and improve the health of critically ill patients with multi-organ dysfunction at the time of admission, discharge or transfer with therapeutic, supportive and managerial comprehensive care. Duration of this course is 18 months.

#### **Aims:**

1. To train knowledgeable, innovative, explorative experts with managerial ability, and with spiritual and professional ethics that with the acquisition of knowledge, skills
2. To conduct researches in the field of health promotion and reduction of treatment complications and costs.
3. Reduction of mortality and duration of hospitalization in the ICU at the highest international standards
4. Promotion of intensive care to the first rank of the region in terms of therapeutic, educational and research perspective.

#### **Admission Requirements**

Those with certificate of medical specialty in the fields of anesthesia, internal medicine and pulmonary subspecialty

#### **Expected Competencies at the End of the Program**

##### **General Competencies\***

## Specific Competencies and Skills

At the end of the program learners will be competent in performing following procedures:

- Arterial blood sampling
- Catheter insertion in peripheral veins
- Vascular cut-down
- Catheterization of central veins through PICC
- Peripheral arterial catheter insertion
- Central venous catheter insertion
- Invasive blood pressure Measurement
- Evaluation of central venous pressure
- Intracranial pressure monitor (optional)
- Perform cricothyroidotomy immediately
- Endotracheal intubation
- Laryngeal mask insertion
- Apply and commission types of ventilator
- Hemodialysis
- Bronchoalveolar lavage (BAL)
- Chest tube insertion
- Percutaneous dilational tracheostomy (PDT)
- Replace tracheostomy tube Perform
- basic lung function tests mouth -
- stomach – jejunal tube insertion
- Defibrillation and defibrillator
- Pericardiocentesis
- Pleural fluid aspiration (Pleural tap)
- Aspiration of ascites (Ascites tap)
- Pulmonary artery catheter insertion
- External pacemaker insertion
- Non-invasive measurement of cardiac output
- Fiber-optic bronchoscopy or laryngoscopy
- Ultrasound for liquid detection
- Echo-Doppler for tamponade
- Percutaneous endoscopic gastrostomy (PEG) \*
- Intra-aortic balloon pump (IABP)

## Educational Strategies, Methods and Techniques\*

### Student Assessment (Methods and Types)

#### A. Assessment methods

- Mini-CEX (mini clinical examination exercise)
- DOPS (direct observation of procedural skill)
- CBD (case-based discussion): continuous evaluation of the resident for notes written in patients' records, diagnosis method, treatment, and decision-making and summary of records and clinical notes and give appropriate feedback to him
- MSF (multi source feedback): 360-degree assessment
- Multiple Choice Question (MCQ) to evaluate residents' theoretical knowledge
- OSCE (Objective Structured Clinical Examination)
- Assessment through portfolio including logbook, the results of assessments conducted by above methods, paper, certificates, encouragements, etc.

#### B. Periods of assessment

- Continuous (through logbook or DOPS assessment)

Seasonal assessments  
Annual assessment

## Ethical Considerations\*

\*Note: The related document(s) can be found at <http://hcmeq.behdasht.gov.ir/>.

### The overall structure of the course:

Department, unit or field of training	Content - measures
ICU	Asthma emergency, respiratory failure, hypoxemic, airway management, hospital infections, infection control, chemical waste, chest trauma, oxygen therapy, artificial respiration, types and modes of respiratory ventilator, disconnect the patient from the ventilator, noninvasive techniques, conditioning, complications of artificial ventilation, care after thoracic surgery, pulmonary function tests, respiratory mechanics, interpretation of blood gas analysis, sedation in ICUs, invasive procedures to control acute pain in ICUs, observation of ethical and legal aspects in ICU, arterial catheter insertion, intravenous catheter insertion, pulmonary artery catheter insertion, retraining cardiopulmonary cerebral resuscitation (CPCR) techniques
surgery room	Airway maneuvers, bag-mask ventilation, tracheal intubation and laryngeal mask airway insertion, sedation, anesthesia, muscle relaxation, bronchoscopy, fiberoptic, familiarity with anesthesia equipment, invasive monitoring
Cardiology ward and CCU	Shock, pulmonary edema, cardiac tamponade, rhythm disorders, coronary artery disease, invasive monitoring and inotropic treatments, anticoagulant treatments and thrombolytic therapy, cardiac emergencies, malignant hypertension and hypertensive crisis, echo training, pace maker, thromboembolism, valvular disorders
Lung department	Spirometry, bronchoscopy, fiberoptic, BAL, inflammatory obstructive and restrictive lung diseases
Radiology department	Spiral CT scan (with contrast), vascular imaging (perfusion), thoracic imaging and other organs trauma, ultrasound, MRI
Department of Neurology	Types of coma, cerebral edema, cerebral vascular insufficiency, monitoring, central nervous system, convulsion and its control, brain death and medical ethics issues in relation to brain trauma

**Selected departments**

**Poisoning**

**Cardiology and ICU**

**Emergency**

**Burn**

Poisoning, diagnosis and treatment of patients after heart surgery, balloon pump insertion, dealing with trauma patient and the way of stabilizing hemodynamic in hemorrhagic shock, smoke inhalation, airways burns

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