

1 Year Certificate Course

In

Emergency Medicine



Kokilaben Dhirubhai Ambani Hospital
and Medical Research Institute
Four Bungalows, Andheri (West)
Mumbai - 400053, India

Introduction

This curriculum sets out the intended aims and objectives, content, experiences and outcomes, and processes of the educational programme intended to provide emergency physicians with adequate knowledge and sufficient clinical experience to be safe, expert practitioners in Emergency Medicine. The layout and standards of this curriculum have been designed to meet the requirements of Indian Emergency Departments (EDs).

Rationale

Emergency Medicine is a new and upcoming concept in India. Only a few teaching and private hospitals have established comprehensive Emergency Departments for patient care and training. The importance of Emergency Departments and Emergency Medical Services has been highlighted following a series of natural and man-made disasters/mass casualties that the nation and the world have witnessed in recent past.

All medical college hospitals have Casualty and Emergency departments manned by faculty and Residents of General Medicine, General Surgery, Paediatrics and Orthopaedics as the core specialities. Obstetrics & Gynaecological emergencies are usually looked after in the labour rooms. These different specialities work vertically and look after the patients belonging to their respective specialities discreetly. There are no Emergency Physicians, as in USA, UK and other western countries, who are capable of looking after a spectrum of emergencies comprising of adults as well as children.

It has become imperative for all hospitals to have trained Emergency Physicians manning the Emergency Departments, along with specially trained nurses and para-medical staff, who can establish and provide Emergency Care of high standards at their respective institutions.

Entry Requirements

Minimum qualification required is MBBS with compulsory rotating internship from a recognised medical college of India. In case of excess applicants, entry will be competitive, based on credentials and interview.

Program dates

The program will commence on 1st February and run through 31st January.

Program rotations

The 1 year program will have clinical rotations as under. Some alterations to suit the local need and facilities may be done.

Department	Period
Emergency Dept.	9 months
Radiology	1 month
Critical Care - Adult	1 month
Critical Care - Paediatric	1 month

Assessment system

Trainees will have a training supervisor for every placement and be under the overall direction of the Program Director throughout the training programme. The Program Director is responsible for implementing the EM curriculum and quality of training outcomes across all specialties. There will be a theory (written) and a practical/oral examination at the end of one year training, for successful award of the certificate. Minimum pass marks will be 50% in theory and practicals separately.

Course Standards

1. The purpose of the course is to describe the knowledge, skills and expertise together with the learning, teaching, feedback and supervision that will be provided by this educational programme designed to provide safe, expert emergency physicians functioning independently at consultant level.
2. The course sets out the general professional and specialty specific content to be mastered. The knowledge, skills and expertise is specified. The general professional content includes a statement about how Good Medical Practice is to be addressed.
3. The content of the course is presented in a way that identifies what the trainee will need to know about, understand, describe, and be able to do at the end of the educational programme.
4. Model of Learning: The course describes the appropriate model of learning through patient care, case clinics, seminars, symposia, journal clubs, group discussion, clinico-pathological correlation, lectures, and training on mannequins.
5. Candidates are required to maintain a record of clinical work and learning activities in the prescribed structured Log-book.
6. The supervision of practice and the safety of doctor and patients are provided by means of direct supervision by the trainer of the trainee, a consultant always being available for advice, and by clinical governance mechanisms including audit and risk management.

What is an Emergency Physician?

Emergency Medicine is a field of practice based on the knowledge and skills required for the prevention, diagnosis, and management of the acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioural disorders. It is a specialty in which time is critical.

- The Emergency Physician (EP) looks after patients with a wide range of pathologies from the life threatening to the self limiting in all age groups.
- The EP is expert in establishing the diagnosis and differential diagnosis especially in life threatening situations.
- The EP is able to identify the critically ill and injured, provide safe and effective immediate care and establish the diagnosis and initiate or plan for definitive care.
- The EP is an expert in resuscitation, skilled in the practical procedures needed.
- The EP safely and effectively differentiates and places patients on care pathways which lead to appropriate discharge with follow up when

needed, admission to an ED based observation unit or admission into hospital.

- The EP works in the difficult and challenging environment of the Emergency Department and is able to re-prioritise and respond to new and urgent situations.
- The EP is part of a multi-disciplinary team where good communication and inter personal skills are essential.
- The EP is able to work closely with a wide variety of in-patient teams and with primary care and pre-hospital clinicians.
- The EP is committed to the highest standards of care and of ethical and professional behaviour within the specialty of Emergency Medicine and within the medical profession as a whole.
- The EP is caring, empathetic and conscientious, and practices medicine without prejudice.
- The EP continually seeks to improve care by utilising up to date evidence, being committed to lifelong learning and being innovative.

Professional development as an Emergency Physician

§ Applies basic knowledge to a full range of emergencies and acquires further specialist knowledge to support clinical care in the emergency department. Develops areas of special interest

§ Develops clinical and examination skills and applies them in clinical practice to develop a differential diagnosis and provisional management plan.

§ Proficient at all resuscitative skills including leading a resuscitation of adults and children. Able to perform emergency procedures in most circumstances

Course Contents

1. Prehospital care
 - a. Emergency Medical Services (EMS)
 - b. Prehospital equipments
 - c. Medical transport
2. Disaster Preparedness
 - a. Nuclear/ biological/ chemical response
 - b. Blast and crush injuries
3. Resuscitation in adults, children and neonates
 - a. Airway
 - b. Cardiac Arrest / Peri-arrest
 - c. Shock
 - d. Coma
4. Shock
 - a. Septic
 - b. Cardiogenic
 - c. Anaphylactic
 - d. Neurogenic shock
5. Anaesthesia
 - a. Acute Pain Management
 - b. Local Anaesthetic Techniques
 - c. Conscious Sedation
6. Wound Management

- a. Wound closure
 - b. Injuries and lacerations
 - c. Soft tissue foreign bodies
 - d. Puncture wounds and bites
7. Trauma
- a. Head Injury
 - b. Chest Trauma
 - c. Neck trauma
 - d. Abdominal Trauma
 - e. Spinal Injury
 - f. Maxillo-facial Trauma
 - g. Trauma in children, elderly, pregnant females
 - h. Penetrating and blunt injuries
 - i. Wounds by ballistics
 - j. Injury control
 - k. General evaluation and management of orthopedic injuries
 - l. Compartment syndromes
 - m. Rhabdomyolysis
 - n. Orthopedic devices for spine, limb support
8. Burns
9. Musculoskeletal conditions
- a. Musculo-skeletal pain
 - b. Rheumatic emergencies
 - c. Acute diseases of joints and bursae
 - d. Soft tissue problems of hand and foot
10. Vascular Emergencies – Arterial, venous
11. Gastrointestinal diseases
- a. Undifferentiated acute Abdominal Pain
 - b. Abdominal pain in elderly
 - c. Upper & lower GI bleeding
 - d. Swallowed foreign bodies
 - e. Peptic ulcer and gastritis
 - f. Acute appendicitis
 - g. Intestinal obstruction
 - h. Hernia
 - i. Ileitis, colitis and diverticulitis
 - j. Pancreatitis
 - k. Gastrointestinal imaging
12. Renal and genito-urinary diseases
- a. Acute renal failure
 - b. Emergencies in dialysis patients
 - c. Urinary tract infections, complications
 - d. Renal/ ureteric calculus disease
 - e. Hematuria
 - f. The renal transplant patient
 - g. Renal imaging
13. Eye problems
- a. Ocular emergencies
14. ENT conditions
- a. Epistaxis
 - b. Disorders of external, middle, inner ear
 - c. Face and jaw emergencies
 - d. Nasal emergencies

- e. Infections and disorders of neck and upper airway
- 15. Dental Emergencies
 - a. Oral and dental emergencies
- 16. Obstetrics & Gynaecology
 - a. Normal pregnancy
 - b. Comorbid diseases in pregnancy
 - c. Emergencies in pregnancy and post-partum period
 - d. Ectopic pregnancy
 - e. Emergency delivery
 - f. Vaginal bleeding in non-pregnant patient
 - g. Abdominal/ pelvic pain in non-pregnant patient
 - h. Pelvic inflammatory disease, vulvovaginitis
 - i. Complications of Obstetric and gynecologic procedures
 - j. Pelvic ultrasonography
- 17. Cardiovascular diseases
 - a. Chest pain
 - b. Acute MI and unstable angina (Acute Coronary Syndromes)
 - c. Syncope
 - d. Congestive heart failure and Acute Pulmonary Edema
 - e. Valvular emergencies
 - f. Cardiomyopathies, myocarditis and pericardial disease
 - g. Pulmonary embolism
 - h. Hypertensive emergencies
 - i. Aortic dissection and aneurysm
 - j. Thrombophlebitis and occlusive peripheral vascular disease
 - k. Implanted Pacemaker dysfunction
 - l. Noninvasive cardiac imaging
- 18. Pulmonary Medicine
 - a. Respiratory distress, ARDS
 - b. Pulmonary and pleural infections, tuberculosis
 - c. Pneumothorax
 - d. Hemoptysis
 - e. Acute asthma, COPD
 - f. Pulmonary imaging
- 19. Neurological Emergencies
 - a. Stroke, TIA and other focal neurologic deficits
 - b. Altered mental status, coma
 - c. Acute flaccid paralysis
 - d. Ataxia and gait disorders
 - e. Vertigo and dizziness
 - f. Seizures and status epilepticus
 - g. Acute peripheral neurologic lesions
 - h. CNS infections
 - i. Neuroimaging in ED
- 20. Hepato-biliary Disorders
 - a. Jaundice
 - b. Cholecystitis and biliary colic
 - c. Hepatic decompensation: encephalopathy, variceal bleed
- 21. Pediatrics
 - a. Fever
 - b. Bacteremia, sepsis, meningitis
 - c. Common neonatal problems

- d. SIDS (sudden infant death syndrome), and ALTE (Apparent life threatening event)
 - e. Cardiac diseases
 - f. Upper and lower respiratory tract infections
 - g. Skin and soft tissue infections
 - h. Asthma & bronchiolitis
 - i. Seizures
 - j. Abdominal emergencies
 - k. Diabetic ketoacidosis, hypoglycemia
 - l. Diarrhea and vomiting
 - m. Altered mental status, headache
 - n. Syncope and sudden death
 - o. Fluid and electrolyte therapy
 - p. Upper respiratory emergencies
 - q. Acute pain management and procedural sedation
 - r. Exanthems, infections, tropical diseases
 - s. Musculoskeletal diseases
 - t. Hematological diseases- sickle cell disease, hemophilia
 - u. Urologic and gynecologic problems
22. Toxicology
- a. General management of poisoned patient
 - b. Drug overdosage and toxicity
 - c. Deliberate self harm
23. Acid Base and Ventilatory disorders
24. Fluid and Electrolytes imbalances and correction
25. Diabetes and Endocrinology
- a. Diabetic ketoacidosis, hypoglycemia
 - b. Alcoholic ketoacidosis
 - c. Hyperosmolar hyperglycemic state
 - d. Hyperthyroidism and thyroid storm
 - e. Hypothyroidism and myxedema coma
 - f. Adrenal insufficiency and adrenal crisis
26. Haematology and oncology
- a. Bleeding disorders
 - b. Hereditary hemolytic anemias
 - c. Transfusion therapy
 - d. Anticoagulants, antiplatelet agents, and fibrinolytics
 - e. Emergency complications of malignancy/chemotherapy
27. Infectious Diseases and Sepsis
- a. Malaria, typhoid, leptospirosis, dengue, viral hepatitis, gastroenteritis, cholera
 - b. Tuberculosis
 - c. Rabies
 - d. Tetanus
 - e. STDs, HIV/AIDS
 - f. Infective endocarditis
 - g. Meningitis and CNS infections
 - h. Toxic shock syndrome
 - i. Soft tissue infections
 - j. Infection control, Universal precautions
28. Dermatology
- a. Serious generalized skin disorders
 - b. Drug reactions/urticaria
29. Rheumatology

- a. Common rheumatologic emergencies
- 30. Neonatology
 - a. Common neonatal emergencies
- 31. Environmental Emergencies
 - a. Snake bites, scorpion stings
 - b. Near-drowning
 - c. Electrical and lightning injuries
 - d. Poisonous foods and plants
- 32. Psychiatry
 - a. Panic disorder
 - b. Conversion disorder
 - c. Substance and alcohol abuse
 - d. Counselling and intervention following disasters
- 33. Radiology in ED
 - a. X-Rays
 - b. Ultrasonography
 - c. CT
 - d. MRI
 - e. Indications of Emergency Intervention radiology
- 34. Major Incident Management
- 35. Equipment in ED
- 36. Legal Aspects of Emergency Medicine
 - 37. Communication skills in ED
 - 38. Research in Emergency Medicine

Procedures and Skills

Airway Techniques

- a) Basic Airway Techniques
- b) Bag Valve Mask Ventilation
- c) Intermediate airways – laryngeal mask, others
- d) Tracheal Intubation
 - Nasotracheal
 - Orotracheal
- e) Rapid sequence induction
- f) Difficult intubation techniques (bougies, introducers and alternative laryngoscopes)
- g) Mechanical ventilation
- h) Surgical Airway Techniques
 - Percutaneous transtracheal ventilation
 - Cricothyroidotomy
- i) Techniques for upper airway obstruction
 - Heimlich manoeuvre
- j) Pharmacological agents in airway management
- k) Tracheal suctioning

Pulmonary Procedures

- a) Oxygen delivery techniques
- b) Needle thoracentesis
- c) Tube thoracostomy
- d) Non-invasive ventilation (not in children)
 - CPAP
 - BiPAP

Cardiac Procedures

- a) Cardiopulmonary resuscitation (CPR)
- b) Carotid Sinus Massage
- c) Direct Current Electrical Cardioversion
- d) Defibrillation
- e) Emergency Transthoracic Cardiac Pacing
- f) Pericardiocentesis
- g) Resuscitative thoracotomy (not in children)

Vascular Access : Techniques and Volume Support Techniques

- a) Arterial puncture and cannulation
- b) Peripheral intravenous access

- c) High flow infusion techniques
- d) Central venous catheterisation techniques (including ultrasound guided)
 - Subclavian
 - Internal jugular
 - Femoral
- e) CVP measurements
- f) Intraosseous infusion
- g) Endotracheal drug administration
- h) Blood and Blood Product Transfusion
- i) Accessing indwelling vascular lines

Vital Sign Measurement

- a) Clinical vital signs
- b) Non-invasive monitoring
- c) Invasive monitoring

Gastrointestinal Procedures

- a) Nasogastric tube placement
- b) Hernia reduction
- c) Proctoscopy
- d) Management of thrombosed external haemorrhoids
- e) Management of rectal prolapse

Musculoskeletal Techniques

- a) Immobilisation techniques
 - Application of a Broad Arm Sling
 - Application of a Collar and Cuff
 - Application of a Knee Immobiliser
 - Application of a Donway / Hare Splint
 - Application of a Thomas Splint
 - Pelvic Stabilisation Techniques
- b) Fracture/dislocation reduction techniques
 - Shoulder Dislocation
 - Elbow Dislocation
 - Pulled elbow
 - Phalangeal Dislocation
 - Supracondylar Fracture with limb threatening vascular compromise
 - Colles Fracture

- Bennett's Fracture
- Simple phalangeal fractures and dislocations
- Patellar Dislocation
- Knee Dislocation with limb threatening vascular compromise
- Ankle, subtalar, toe dislocations

c) Plaster Techniques

- Above and below elbow backslab and POP
- Scaphoid POP
- Bennett's POP
- Volar Splint
- U SLAB
- Above and below knee backslab and POP

d) Spinal immobilisation techniques/log rolling

e) Arthrocentesis

f) Compartment syndrome Management

Genitourinary Techniques

a) Bladder catheterisation

- Urethral catheter
- Suprapubic catheterisation

Obstetric and Gynaecological Procedures

a) Delivery

- Normal delivery
- Abnormal delivery

b) Gynaecological Speculum Examination

Neurological Procedures

a) Lumbar puncture and CSF examination

Ophthalmic Procedures

a) Ocular foreign body removal

ENT Procedures

a) Control of epistaxis

- Anterior packing
- Posterior packing and balloon placement

b) Foreign body removal

Emergency Dental Procedures

a) Dental anaesthesia

Emergency Department Diagnostic Ultrasound

Universal Precautions

Suggested Reading

1. Rosen's Emergency Medicine – Concepts and Clinical Practice, by Marx, Hockburger, Walls, Adams, barsan, Biros, Danzl, Gausche-Hill, Hamilton, Ling and Newton. Vol 1-3, 6th Edition.
2. Emergency Medicine - A Comprehensive Study Guide, by Tintinalli, Kelen, Stapczynski, Ma, Cline, 6th Edition.
3. The Oxford Handbook of Emergency Medicine - Wyatt et al., 3rd Edition.

Course Director:

Dr.Sanjay Mehta, MD
Consultant- Emergency Medicine

Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute
Four Bungalows, Andheri (West), Mumbai-400053, India.

Tel.: 91-22- 30970010, 30970002
E-mail: sanjay.sm.mehta@relianceada.com

