



AMRITA
VISHWA VIDYAPEETHAM

Program

MD Emergency Medicine

(Revised with effect from 2014-2015 onwards)

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Program Outcomes

- PO1 The competence to look after patients with a wide range of pathologies from the life threatening to the self limiting in all age groups.
- PO2 The competence to establish the diagnosis and differential diagnosis especially in life threatening situations.
- PO3 The ability to identify the critically ill and injured, provide safe and effective immediate care and establish the diagnosis and initiate or plan for definitive care.
- PO4 The ability to work in the difficult and challenging environment of the Emergency Department and the ability to re-prioritise and respond to new and urgent situations.

Program Specific Outcomes

- PSO1 Expertise in resuscitation and skill in the practical procedures needed.
The competence to safely and effectively differentiate and place 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.
- PSO2 The ability to work as a part of a multi-disciplinary team where good communication and inter personal skills are essential.
- PSO3 The attitude to be 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.
- PSO4 The attitude to practice the profession in a caring, empathetic and conscientious manner without prejudice.
- PSO5 The attitude to continually seek to improve care by utilising up to date evidence, being committed to lifelong learning and being innovative.
- PSO6

Introduction to Emergency Medicine

This curriculum sets out the intended aims and objectives, content, experiences and outcomes and processes of the educational programme to provide emergency physicians with adequate knowledge and sufficient clinical experience to be safe, expert and independent practitioners functioning at consultant level within India.

It is intended that the curriculum be forward-looking and aspirational and is very much centered on the Emergency Department as the principal learning environment for trainees.

It is important that existing consultants also adopt this curriculum as a guide to their own Emergency Department.

What is Emergency Medicine ?

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 role of Emergency Physician (EP)

- 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 interpersonal skills are essential.
- The EP is able to work both within and lead a team to ensure the patient's needs are met.
- 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, 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.
- The EP's greatest sense of satisfaction comes from ensuring that patients have received the right treatment at the right time and seeing them improve.

Training Programme for Emergency Medicine

Educational Purpose and Goals

The purpose of the Emergency Medicine course is to expose the resident to patients with critical and urgent medical problems commonly seen in the Emergency Department setting with the supervision of the full-time emergency medicine faculty. Residents will learn how to diagnose, manage, and/or triage patients with unselected medical problems; how to work within a health care team; and how to perform a variety of invasive medical procedures needed in the early management of acute illness.

Entry Requirements

Candidate should have

1. A recognised MBBS degree and have completed internship(CRRI) and
2. Have registered his or her name with any of the state medical councils

Programme

1. Year 1 (semester 1, and 2) - Emergency Medicine
2. Year 2 (semester 3, and 4) – Speciality postings
3. Year 3 (semester 5, and 6) – Emergency medicine

Assessment system

Trainees will have a training supervisor for every placement and be under the overall direction of the Postgraduate program committee (PGP) throughout the training programme. A system of workplace based training and assessment is laid out in this curriculum.

1. Monthly assessments for all candidates in Semester 1 and Semester 2
2. End posting assessments for all candidates in Semester 3 and Semester 4
3. Monthly assessments for all candidates in Semester 5 and Semester 6
4. Final assessment at end of 6th semester.

Curriculum Standards

Standard 1:- Rationale

- a. The purpose of the curriculum 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
- b. The curriculum was developed and validated in the following way:

A curriculum committee composed of both consultants and trainees with a strong track record of educational expertise was formed to seek feedback from as wide an audience as possible. The content of this document has been agreed by the curriculum committee based on its relevance to emergency medicine practice in INDIA. It has been submitted to the PGP of Amrita Vishwa Vidyapeetham.

- c. The curriculum is embedded in the specialty of Emergency Medicine and this is reflected both in the generic and specialty sections.
- d. This curriculum assumes trainees have met the specified competencies of the Foundation Years and ideally have worked in an Emergency Department.

Standard 2:- Content of Learning

- a. The curriculum 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.
- b. The content of the curriculum 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.
- c. For each of the content areas there is a recommendation for the type of learning experiences.

Standard 3:- Model of Learning

Wherever possible the curriculum describes the appropriate model of learning, be it work based experiential learning, independent self directed learning or appropriate off the job education. How learning for knowledge, competence, performance and independent action will be achieved is specified.

Standard 4:- Learning Experiences

- a. Recommended learning experiences are specified. These are predominantly self-directed and work- based learning. The following methods will be used:
 - Learning from practice.
 - Learning from trainers either by working alongside or in specified one-to-one teaching.
 - Learning from formal situations such as group teaching within the department and regional teaching programmes.Learning opportunities outside the department include life support courses and skills lab based teaching.

Nearly all specialised training is centered in the Emergency Department. An understanding of the care received beyond the Emergency Department is important and is best obtained by being part of the team responsible for care both in the Emergency Department and following the patient through to the first 4 to 6 hours of their in-patient care. It is recognised that some areas of Emergency Medicine practice require dedicated time outside of the Emergency Department prior to practicing such skills within it e.g. critical care and anesthesia, Cardiology, Orthopedics. Focused personal study outside of contracted hours is essential.

- b. Educational strategies that are suitable for work based experiential learning include the use of log books and dissertation.
- c. Trainees should participate in journal clubs and case presentations.

Standard 5:- Supervision and Feedback

- a. The mechanisms for ensuring feedback on learning recommended and required are specified. These include one-to-one teaching, clinical evaluation exercises, multi professional feedback appraisal and mock examination.
- b. 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.

Standard 6:- Managing Curriculum Implementation

It is intended that the curriculum identify the knowledge, skills and expertise required of trainers and guide how they should deliver their training. It also identifies the means by which feedback should be given and assessment undertaken.

The trainee should have a clear idea of what is required, how they should acquire the knowledge, skill and experience to become an emergency physician and their role and responsibility.

Coverage of the Curriculum will be ensured by making it the responsibility of the standing curriculum committee to continuously review the curriculum, appoint emergency physicians to review and suggest updates of segments of the curriculum and to have feedback from the examination committee and from trainees.

It is the responsibility of the local trainers to ensure that the curriculum is delivered by each rotation. Different sites will provide different experiences and these should be

optimized. Trainers are responsible for the out of department experiences of the trainees. For this to work effectively there needs to be clarification of the learning objectives of that experience and that those outside the department charged with that educational experience should be clear as to what is being asked of them. Areas suitable for out of department experience are identified in the curriculum.

Trainers must ensure that the training process is effective and can use the assessment methods described in the curriculum to inform that process. They must also provide learning opportunities at a regional level e.g. mock exams, regional teaching.

Trainees also have responsibilities for the implementation of the curriculum. They must optimise all of the time available to them to achieve the objectives of the curriculum. All protected time must be department based unless with the prior agreement of their educational supervisor. In this situation clear educational goals must be set and achieved. Trainees must use their study leave effectively, use one-to-one teaching and supervision and recognise the importance of personal study outside of contracted working hours.

By having greater definition of the specialty of Emergency Medicine other curriculum planners can use this curriculum.

Standard 7 Curriculum Review and Updating

- a. The curriculum committee will be responsible for continuous review of the curriculum and will receive feedback from the Board of Studies, examination committee and those specialists allocated segments of the curriculum.
- b. Evaluation of the curriculum will be by structures formal feedback from trainers and trainees and feedback from the examination committee. The curriculum committee will be responsible for continuously monitoring this feedback and will report directly to the education and examination committee four times a year.
- c. The curriculum will be updated annually by July of each year and will reflect changes in practice. These changes in the curriculum will be highlighted. Trainees are involved in the curriculum process by being part of the curriculum committee, which is also happy to receive comments from the trainees association.

Lectures

1. Five hours of lecture per week are provided to residents on the rotation. Lecture topics are published at the beginning of the academic year. Attendance is mandatory.
2. A resident case presentation is required of all residents rotating through the Emergency Medicine rotation.
3. Residents are required to discuss critical care topics with an attending faculty or senior level emergency medicine resident.
4. Independent reading is expected. The resident is expected to read from a core emergency medicine text (see attached list).

6. Emergency Medicine topics

- Acute Abdominal Pain
- Abdominal Trauma, Blunt
- Abdominal Trauma, Penetrating
- Acromioclavicular Injury
- Acute Coronary Syndrome
- Acute Orbital Compartment Syndrome
- Acute Respiratory Distress Syndrome
- Adrenal Insufficiency and Adrenal Crisis
- Alcohol and Substance Abuse Evaluation
- Alcoholic Ketoacidosis
- Altitude Illness – Cerebral Syndromes
- Altitude Illness – Pulmonary Syndromes
- Anaphylaxis
- Aneurysm, Abdominal
- Aneurysm, Thoracic
- Angina Pectoris
- Angioedema
- Ankle Injury, Soft Tissue
- Antibiotics: A Review of ED

Use

- Anxiety
- Appendicitis, Acute
- Arthritis, Rheumatoid
- Asthma
- Asystole
- Atrial Fibrillation
- Atrial Flutter
- Automatic External Defibrillation
- Back Pain, Mechanical
- Barotrauma
- Basic anesthesia / Anesthetic drugs
- Bee and Hymenoptera Stings
- Bell Palsy
- Benign Positional Vertigo
- Bites, Animal
- Bites, Human
- Bites, Insects
- Blast Injuries
- Body Fluid Exposures
- Brown-Sequard Syndrome
- Burns, Chemical
- Burns, Ocular
- Burns, Thermal

- Bursitis
- Biological Warfare Agents
- Cavernous Sinus Thrombosis
- Cellulites
- Central Vertigo
- Cervical Strain
- Cholangitis
- Cholecystitis and Biliary Colic
- Cholelithiasis
- Chronic Obstructive Pulmonary Disease and Emphysema
- Compartment Syndrome, Extremity
- Complex Regional Pain Syndrome
- Congestive Heart Failure and Pulmonary Edema
- Conjunctivitis
- Constipation
- Conversion Disorder
- Coping With the Death of a Child in the ED
- Corneal Abrasion
- Corneal Laceration
- Costochondritis
- Decompression Sickness
- Deep Venous Thrombosis and Thrombophlebitis
- Delirium Tremens
- Delirium, Dementia, and Amnesia
- Dengue Fever
- Dental, Avulsed Tooth
- Dental, Displaced Tooth
- Dental, Fractured Tooth
- Dental, Infections
- Diabetes Mellitus, Type 1 – A Review
- Diabetes Mellitus, Type 2 – A Review
- Diabetic Ketoacidosis
- Diaphragmatic Injuries
- Diphtheria

- Disaster Planning
- Dislocation, Ankle
- Dislocation, Elbow
- Dislocation, Foot
- Dislocation, Hand
- Dislocation, Hip
- Dislocation, Interphalangeal
- Dislocation, Knee
- Dislocation, Mandible
- Dislocation, Shoulder
- Dislocation, Wrist
- Dissection, Aortic
- Dissection, Carotid Artery
- Dissection, Vertebral Artery
- Disseminated Intravascular Coagulation
- Domestic Violence
- Drowning
- Dysbarism
- Dysfunctional Uterine Bleeding
- Dysmenorrhea
- EMS and Terrorism
- Elder Abuse
- Electrical Injuries
- Emergency Neuroradiology
- Encephalitis
- Endocarditis
- Epididymitis
- Epistaxis
- External Pacemakers
- Felon
- Foreign Bodies, Ear
- Foreign Bodies, Gastrointestinal
- Foreign Bodies, Nose
- Foreign Bodies, Rectum
- Foreign Bodies, Trachea
- Fournier Gangrene
- Fracture, Ankle
- Fracture, Cervical Spine
- Fracture, Clavicle
- Fracture, Elbow
- Fracture, Face bones

- Fracture, Femur
- Fracture, Foot
- Fracture, Forearm
- Fracture, Frontal
- Fracture, Hand
- Fracture, Hip
- Fracture, Humerus
- Fracture, Knee
- Fracture, Mandible
- Fracture, Orbital
- Fracture, Pelvic
- Fracture, Rib
- Fracture, Scapular
- Fracture, Sternal
- Fracture, Tibia and Fibula
- Fracture, Wrist
- Frostbite
- Gas Gangrene
- Gastritis and Peptic Ulcer Disease
- Gastroenteritis
- Glomerulonephritis, Acute
- Gonorrhea
- Grief Support in the ED
- Guillain-Barré Syndrome
- Hand Infections
- Hand Injury, High Pressure
- Hand Injury, Soft Tissue
- Hanging Injuries and Strangulation
- Headache, Cluster
- Headache, Migraine
- Headache, Tension
- Heart Block, First Degree
- Heart Block, Second Degree
- Heart Block, Third Degree
- Heat Exhaustion and Heatstroke
- Hemolytic Uremic Syndrome
- Hemophilia, Type A
- Hemophilia, Type B
- Hemorrhoids
- Henoch-Schönlein Purpura
- Hepatitis

- Hernias
- Herpes Simplex
- Herpes Simplex Encephalitis
- Herpes Zoster
- Herpes Zoster Ophthalmicus
- Hiccups
- Hidradenitis Suppurativa
- HIV Infection and AIDS
- Hordeolum and Stye
- Hydrofluoric Acid Burns
- Hypercalcemia
- Hyperkalemia
- Hypermagnesemia
- Hyponatremia
- Hyperosmolar Hyperglycemic State
- Hyperparathyroidism
- Hyperphosphatemia
- Hypertensive Emergencies
- Hyperthyroidism, Thyroid Storm, and Graves Disease
- Hyperventilation Syndrome
- Hyperviscosity Syndrome
- Hypocalcemia
- Hypoglycemia
- Hypokalemia
- Hypomagnesemia
- Hyponatremia
- Hypoparathyroidism
- Hypophosphatemia
- Hypopituitarism
- Hypothermia
- Hypothyroidism and Myxedema Coma
- Idiopathic Thrombocytopenic Purpura
- Iritis and Uveitis
- Knee Injury, Soft Tissue
- Labyrinthitis
- Lactic Acidosis
- Lambert-Eaton Myasthenic Syndrome
- Leptospirosis in Humans
- Lightning Injuries

- Lumbar (Intervertebral) Disk Disorders
- Malaria
- Mastoiditis
- Mechanical ventilation (Invasive / Non invasive)
- Mediastinitis
- Meniere Disease
- Meningitis
- Mesenteric Ischemia
- Metabolic Acidosis
- Methemoglobinemia
- Millipede Envenomation
- Multifocal Atrial Tachycardia
- Myasthenia Gravis
- Myocardial Infarction
- Myocarditis
- Nailbed Injuries
- Neck Trauma
- Necrotizing Fasciitis
- Needle-stick Guideline
- Neuroleptic Malignant Syndrome
- Obstruction, Large Bowel
- Obstruction, Small Bowel
- Orbital Infections
- Orchitis
- Ovarian Torsion
- Pacemaker and Automatic Internal Cardiac Defibrillator
- Pancreatitis
- Panic Disorders
- Pediatrics, Anaphylaxis
- Pediatrics, Apnea
- Pediatrics, Appendicitis
- Pediatrics, Crying Child
- Pediatrics, Dehydration
- Pediatrics, Diabetic Ketoacidosis
- Pediatrics, Epiglottitis
- Pediatrics, Febrile Seizures
- Pediatrics, Fever
- Pediatrics, Foreign Body Ingestion

- Pediatrics, Gastroenteritis
- Pediatrics, Gastrointestinal Bleeding
- Pediatrics, Hand-Foot-and-Mouth Disease
- Pediatrics, Headache
- Pediatrics, Hypoglycemia
- Pediatrics, Intussusception
- Pediatrics, Reactive Airway Disease
- Pediatrics, Respiratory Distress Syndrome
- Pediatrics, Status Epilepticus
- Pediatrics, Sudden Infant Death Syndrome
- Pediatrics, Tachycardia
- Pericarditis and Cardiac Tamponade
- Periorbital Infections
- Phimosi and Paraphimosi
- Plant Poisoning, Alkaloids – Isoquinoline and Quinoline
- Plant Poisoning, Alkaloids – Tropane
- Plant Poisoning, Glycosides – Cardiac
- Plant Poisoning, Glycosides – Coumarin
- Plant Poisoning, Herbs
- Plant Poisoning, Hypoglycemics
- Plant Poisoning, Licorice
- Plant Poisoning, Oxalates
- Plant Poisoning, Phytophototoxins
- Plant Poisoning, Resins
- Plant Poisoning, Toxicodendron
- Plantar Fasciitis
- Pleural Effusion
- Pneumonia, Aspiration
- Pneumonia, Bacterial
- Pneumonia, Empyema and Abscess

- Pneumonia, Immunocompromised
- Pneumonia, Mycoplasma
- Pneumonia, Viral
- Pneumothorax, Iatrogenic, Spontaneous and Pneumomediastinum
- Pneumothorax, Tension and Traumatic
- Postconcussive Syndrome
- Pregnancy, Asthma
- Pregnancy, Breech Delivery
- Pregnancy, Delivery
- Pregnancy, Eclampsia
- Pregnancy, Ectopic
- Pregnancy, Hyperemesis Gravidarum
- Pregnancy, Postpartum Hemorrhage
- Pregnancy, Postpartum Infections
- Pregnancy, Preeclampsia
- Pregnancy, Trauma
- Pregnancy, Urinary Tract Infections
- Pulmonary Embolism
- Rapid Sequence Induction
- Renal Calculi
- Renal Failure, Acute
- Renal Failure, Chronic and Dialysis Complications
- Review of Cardiac Tests
- Rh Incompatibility
- Rotator Cuff Injuries
- Scorpion Envenomation
- Screening and Diagnostic Tests
- Sedation
- Serum Sickness
- Sexual Assault
- Shock, Cardiogenic
- Shock, Hemorrhagic
- Shock, Hypovolemic
- Shock, Septic

- Sinus Bradycardia
- Smoke Inhalation
- Snake Envenomation, Cobra
- Spinal Cord Infections
- Spinal Cord Injuries
- Status Epilepticus
- Sternoclavicular Joint Injury
- Stevens-Johnson Syndrome
- Stroke, Hemorrhagic
- Stroke, Ischemic
- Subarachnoid Hemorrhage
- Subdural Hematoma
- Sunburn
- Syncope
- Syndrome of Inappropriate Antidiuretic Hormone Secretion
- Tendonitis
- Tenosynovitis
- Testicular Torsion
- Tetanus
- Therapeutic Hypothermia
- Torticollis
- Toxic Epidermal Necrolysis
- Toxic Shock Syndrome
- Toxicity, Acetaminophen
- Toxicity, Alcohols
- Toxicity, Ammonia
- Toxicity, Amphetamine
- Toxicity, Anticholinergic
- Toxicity, Antidepressant
- Toxicity, Antidysrhythmic
- Toxicity, Antihistamine
- Toxicity, Barbiturate
- Toxicity, Benzodiazepine
- Toxicity, Beta-blocker
- Toxicity, Caffeine
- Toxicity, Calcium Channel Blocker
- Toxicity, Carbamazepine
- Toxicity, Carbon Monoxide
- Toxicity, Chlorine Gas
- Toxicity, Cocaine
- Toxicity, Cyanide

- Toxicity, Cyclic Antidepressants
- Toxicity, Digitalis
- Toxicity, Disulfiram
- Toxicity, Ethylene Glycol
- Toxicity, Fluoride
- Toxicity, Gamma-Hydroxybutyrate
- Toxicity, Hallucinogen
- Toxicity, Hydrocarbon Insecticides
- Toxicity, Hydrocarbons
- Toxicity, Hydrogen Sulfide
- Toxicity, Iron
- Toxicity, Local Anesthetics
- Toxicity, MDMA
- Toxicity, Medication-Induced Dystonic Reactions
- Toxicity, Monoamine Oxidase Inhibitor
- Toxicity, Mushrooms
- Toxicity, Narcotics
- Toxicity, Neuroleptic Agents
- Toxicity, Nitrous Dioxide
- Toxicity, Nonsteroidal Anti-inflammatory Agents
- Toxicity, Organic Phosphorous Compounds and Carbamates
- Toxicity, Phenytoin
- Toxicity, Rodenticide
- Toxicity, Salicylate
- Toxicity, Sedative-Hypnotics
- Toxicity, Selective Serotonin Reuptake Inhibitor
- Toxicity, Shellfish
- Toxicity, Sympathomimetic
- Toxicity, Terpene

- Toxicity, Valproate
- Toxicity, Warfarin and Superwarfarins
- Transfusion Reactions
- Transient Ischemic Attack
- Trauma, Lower Genitourinary
- Trauma, Peripheral Vascular Injuries
- Trauma, Upper Genitourinary
- Travel Medicine and Vaccination
- Trigeminal Neuralgia
- Ultrasonography, Abdominal
- Ultrasonography, Cardiac
- Ultrasonography, Pelvic
- Ultraviolet Keratitis
- Urethritis, Male
- Urinary Incontinence
- Urinary Obstruction
- Urinary Tract Infection, Female
- Urinary Tract Infection, Male
- Urticaria
- Use of Cardiac Markers in the EM Dpt.
- Uterine Prolapse
- Vaginitis
- Venous Air Embolism
- Ventilator Management
- Ventricular Fibrillation
- Ventricular Tachycardia
- Vertebrobasilar Atherothrombotic Disease
- Vestibular Neuronitis
- Wernicke Encephalopathy
- Withdrawal Syndromes

Procedures and Skills

Airway Techniques

- a) Basic Airway Techniques
- b) Bag Valve Mask Ventilation / Mapelson "C" circuit
- c) Intermediate airways – laryngeal mask, other
- 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) Needles thoracentesis
- c) Tube thoracostomy
- d) Non-invasive ventilation (not in children)
 - CPAP
 - BiPAP

Gastrointestinal Procedures

- a) Orogastric tube placement
- b) Balloon tamponade of gastroesophageal varices
- c) Diagnostic peritoneal lavage
- d) Hernia reduction
- e) Proctoscopy
- f) Management of thrombosed external haemorrhoids
- g) Management of rectal foreign bodies

h) 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) 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
- c) Spinal immobilisation techniques/log rolling
- d) Arthrocentesis
- e) Compartment syndrome Management

Genitourinary Techniques

- a) Bladder catheterisation
 - Urethral catheter
 - Suprapubic catheterisation (not in children)
- b) Testicular detorsion
- c) Manual Reduction Paraphimosis

Emergency Dental Procedures

- a) Dental anesthesia
- b) Dental socket suture

COURSES

Course 1 Internal Medicine Emergencies (MDEM1)

CO1: Competence to give emergency care in cardiovascular emergencies.

CO2: Competence to give emergency care in neurological emergencies.

CO3: Competence to give emergency care in poisoning and related emergencies.

CO4: Competence to give emergency care in diabetic and related emergencies.

CO5: Competence to give emergency care in infections and other emergencies involving internal medicine.

Cardiac Procedures

Cardiopulmonary resuscitation (CPR)

Initial management in ST elevation myocardial Infarction (STEMI)

Carotid Sinus Massage

Direct Current Electrical Cardioversion

Defibrillation

Emergency Transthoracic Cardiac Pacing

Pericardiocentesis

Echocardiography

Resuscitative thoracotomy

Initial management in cardiac trauma

Neurological Procedures

a) Lumbar puncture and CSF examination

Course 2: Anaesthesia and Critical Care (MDEM2)

CO1: Competence in handle intubation and ventilation in the context of emergency medicine.

CO2: Ability to handle fluid/electrolyte imbalance in the setting of emergency medicine.

CO3: Knowledge and skill required to handle anaesthesia in the emergency medicine setting.

Vascular Access Techniques and Volume Support Techniques

- a) **Arterial puncture and cannulation including placement of central line, External Jugular Vein (EJV) cannulation**
- b) Peripheral intravenous access
- c) High flow infusion techniques
- d) Venous cutdown (not in children)
- e) Central venous catheterisation techniques (including ultrasound guided)
 - Subclavian

- Internal jugular
- Femoral

- f) CVP measurements
- g) Endotracheal drug administration
- h) Blood and Blood Product Transfusion

Intraosseus administration of drugs

- i) Accessing indwelling vascular lines

Vital Sign Measurement

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

Course 3: Trauma and Surgical Emergencies (MDEM3)

CO1: Competence to manage fractures in the emergency medicine setting.

CO2: Competence to manage other trauma in the emergency medicine setting.

CO3: Competence to manage emergencies involving specialities like obstetrics and gynaecology, ENT, Ophthalmology etc. in the setting of emergency medicine.

Obstetric and Gynaecological Procedures

- a) Delivery
 - Normal delivery
 - Abnormal delivery
- b) Examination of the sexual assault victim
- c) Gynaecological Speculum Examination

Ophthalmic Procedures

- a) Use of slit lamp
- b) Rust ring removal
- c) Ocular foreign body removal

ENT Procedures

- a) Control of epistaxis
 - Anterior packing
 - Posterior packing and balloon placement

- b) Foreign body removal
- c) Aural toilet/wick insertion

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 dislocation

Course 4: Recent Advances in Emergency and Critical Care Medicine (MDEM4)

CO1: Uptodate knowledge about the recent advances in the diagnostic techniques used in emergency medicine.

CO2: Uptodate knowledge about the recent advances in emergency management.

CO3: Familiarity with recent publications in the subject.

Emergency Department Diagnostic Ultrasound

ECHO cardiogram

Heat Emergency Procedures

- a) **Management of Hypothermia**
- b) **Management of Hyperthermia**

Universal Precautions

ATLS

ACLS

Course 5: Soft Skills (MDEM5)

CO1: The ability to do a clinical research.

CO2: The competency to interact with the patients and by standers in a proper way.

CO3: The ability to work within and lead a team to ensure that the patient’s needs are met.

CO4: Understanding of medical ethics and ettiquette.

CO5: Competency to be a good teacher.

This is an elective course. The students will undergo training throughout the program and will be assessed through 360 degree evaluation.**ROTATION POSTINGS FOR EMERGENCY MEDICINE PG**

Departments	Duration of postings	Semester
Emergency Medicine CDH (Mannequin training) Anesthesia (Intubation and basic anesthesia techniques) ATLS ACLS	24 months	1,2,5,6
MICU	2 months	3
SICU	1 month	3
CCU	1 month	3
Radiology(Basic CT/MRI/USG abdomen)	1 month	3
Neurology	1 month	3
Orthopedics	2 months	4
HNPRS(Plastic surgery, dental)	1 month	4
Neurosurgery	2 weeks	4
ENT	2 weeks	4
Labour room	2 weeks	4
Pediatrics	1 month	4
Urology	2 weeks	4

Log Book/Dissertation

Log book is a record of the important activities of the candidates during his training, internal assessment should be based on the evaluation f the log book.

Pattern of log book preparation

Part 1 Diseases/Management

Patient name & MRD	Disease/ Condition	Management / Procedure	Learning objectives	Under guidance of
Mr. X 787878	Right Pleural Effusion	Pleural tapping	Procedure skill Pleural fluid analysis	Dr. Y Sign

Part II Presentations/Lectures

Topic Date	Presenter	Rate the presentation (****)	Learning Objectives	Further reading
Fracture of Upper limb bones 11/08/09	Dr - Z	***	Diagnosis of fracture by signs by X ray Early management	1. Essential Orthopedics and Trauma 4th Edn. David J Dandy, Dennis J Edwards. – Churchill Livingstone (Page no)

Final Page of Log book (pattern)

Cases/Procedures	Number
Endo tracheal Intubation	100
Catheterisation	1000
CPR	15
ATLS Attended	3
ACLS Attended	3
Medico Legal Case	15
Ambulance call	100
Topic presentations	100
Case presentations	100
Articles presented	100
Lectures	100
Clinical studies done during MD programme	2

Dissertation : Each candidate has to do a detailed study as per the University Protocol.

Reference books

Medicine

- 1- Rosens Emergency Medicine – concepts and clinical practice Vol 1, 2, 3 – 6th Edn. Marx Hockbergers Walss. Mosby Elsever
- 2- The clinical practice of emergency medicine. *ANN Harwood Nuss, Allan B Wolfson 3rd Ed.* Lippincott Williams and Wilkims.
- 3- Guidelines of practice of Emergency Medicine. Narayan H Nayak . Bi Churchill Livingstone

Anesthesia

1. Lees Synopsis of anesthesia – 14th Edn. NJH Davies, JN Cashmann Elsevier.
2. Instructors resource Manual. Andrew W Stern – 10th Edn.
3. Emergency care – Danniell Limer, Michael FO' Keefe
4. Essential of emergency care - Michael FO' Keefe
5. Mechanical ventilation – Neil R Mac Intyre, Richard D Branson - Saunders.
6. Evidence based practice of Anesthesiology. Lee A Fleisher - Saunders
7. Manual of intensive care medicine – 3rd Edn. Lippincott Williams and Wilkins

Trauma

1. Essential Orthopedics and Trauma – 4th Edn. David J Dandy, Dennis J Edwards. – Churchill Livingstone
2. Outline of Orthopedics – 13th Edn. John Crawford, Adams, David E
3. Sports injuries. Freddie H, Fu David
4. Emergency care and transportation of sick and injured. James D Heckman 5th Edn. American Association of Orthopedics Surgeons

Other books

- Emergency Medicine - A Comprehensive Study Guide, by Tintinalli, Kelen, Stapczynski 5th Edition.
- Medical Physiology by W.F Garnong.
- Anatomy for Emergency Medicine by Snell
- The Oxford Handbook of Emergency Medicine – Wyatt et al.
- The Cambridge Textbook of Emergency Medicine, Skinner et al.
- The Textbook of Adult Emergency Medicine, Cameron et al.
- Clinical Procedures in Emergency Medicine, Roberts and Hedges.
- Practical Fracture Treatment. R. McRae
- Acute Medical Emergencies – U. Guly & D. Richardson
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- Accidents and Emergencies in Children, R.G. Morton & B.M. Phillips.

- The Management of Wounds & Burns, J. Wardrope & G.A.R. Smith.
- Cardiopulmonary Resuscitation, D.V Skinner and R. Vincent.
- The Management of Head Injuries, D.G Curry.
- Anaesthesia and Analgesia in Emergency Medicine, K.A Illingworth & K.H Simpson
- Acute Medical Emergencies – The Practical Approach. The Advance Life Support Group
- The ECG in Acute MI – An Evidence Based Manual of Re-perfusion Therapy by Smith et al.
- Evidence Based Medicine – How to Practice & Teach EBM, Sackett et al.
- Clinical Chemistry in Diagnosis & Treatment, by Zilva & Panell
- Manual of Emergency Airway Management, Walls et al.
- Lecture Notes on Emergency Medicine, Moulton & Yates.
- Advance Paediatric Life Support – The Practical Approach, 2nd Edition The Advance Life Support Group.
- Maxillo-facial and Dental Emergencies – J. Hawkesford & J.G. Banks
- Emergencies in Obstetrics and Gynaecology – L. Stevens
- The Management of Major Trauma – C. Robertson & A.D. Redmond
- Environmental Medical Emergencies – D.J. Steedman
- Psychiatric Emergencies – S.R. Merson & D.S. Baldwin
- History Taking, Examination, and Record Keeping in Emergency Medicine – H.R. Guly
- Emergency Management of Hand Injuries (Oxford Handbooks in Emergency Medicine) G.R. Wilson, P. Nee, J.S. Watson
- ABC of learning and teaching in Medicine. Cantillon et al

Examination Scheme

MD examination in Emergency Medicine shall consist of dissertation, Theory papers, Clinical, Viva voce, teaching skills and Log book evaluation,

1. Theory papers -- Total 400 marks

- Paper 1 -- Internal Medicine Emergencies (100 marks)
- Paper 2 -- Anesthesia and critical care (100 marks)
- Paper 3 -- Trauma and surgical emergencies (100marks)
- Paper 4 - Recent advances in Emergency and critical care medicine (100 marks)

Topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics

2. Clinical Skills - Total marks 200 marks

- Short Case 1 – Internal Medicine 25 marks
- Short Case 2 - Orthopedic case 25 Marks
- Short Case 3 - Patient on ventilator 25 marks
- Management of patient with trauma – 25 marks
- 10 stations (100 marks) – Spotter + VIVA
 1. Interpretation Of ECG – 10 marks
 2. Interpretation of X ray Chest / CT Chest – 10 marks
 3. Interpretation of ABG – 10 marks
 4. Interpretation of X ray / CT abdomen – 10 marks
 5. Interpretation of CT / MRI brain 10 marks
 6. Interpretation of X ray of fracture – 10 marks
 7. Interpretation of Lab values – Chart – 10 marks
 8. Evaluation of Log Book – 10 marks
 9. VIVA – Voce (by 4 examiners) 5 x 4 = 20 marks

Examiners

Internal Examiners

- 1- Department of Medicine AIMS(with > 5 years teaching Experience)
- 2- Department of Orthopedics AIMS (with > 5 years teaching Experience)
- 3- Department of Anesthesia AIMS(with > 5 years teaching Experience)

External Examiner

- 4- An Examiner from other Universities (Internal medicine/Anesthesia/Orthopedics with > 5 years teaching Experience)

Sample Question Paper

Paper I : Internal Medicine Emergencies

Amrita Viswa Vidya Peetham

Dept. of Emergency Medicine

Time:- 3 Hours

Marks :- 100

Each question carries 10 marks:-

1. 70 year male with acute onset of vertigo since 1 day, he had H/o fever and upper respiratory tract infection 1 day back,
O/E Pulse 80 bts/m regular, BP 130/80 mmHg no postural drop, Horizontal nystagmus present

- What are the possibilities, advice management?
2. 25 year old female presented with H/o breathlessness, O/e Tachypnic ,no cyanosis, saturation 95%,carpal spasm
Discuss possibilities and management
 3. Safe use of Morphine
 4. 50 year old male with H/o Abdominal tuberculosis ,started on ATT 2 days back now admitted with severe hypotension
Discuss the causes and management
 5. Cerebral circulation
 6. 50 year old male , Referred from outside with intracerebral bleed
BP 270/160 mm HG,he also developed status epilepticus
Discuss the management
 7. 76 year old lady presented with 2 days H/o confusion, No fever
She is a known hypertensive, recently started on diuretics
Discuss the possibilities and management
 8. Discuss about supra ventricular tachyarrhythmias
 9. Diabetic ketoacidosis
 10. Organo phosphorous poisoning

Paper II : Anesthesia and critical care

Amrita Viswa Vidya Peetham

Dept. of Emergency Medicine

Time:- 3 Hours

Marks :- 100

Each question carries 10 marks:-

1. Rapid Sequence Intubation
2. Neuromuscular Blocking Agents
3. The team approach to cardiac arrest
4. Mechanical ventilator modes
5. 55 year old male diabetic patient admitted in ICU with altered behaviour, his ABG shows severe acidosis, blood sugar 560mg/dl , discuss the clinical problem and management
6. ARDS management
7. Fluid replacement therapy
8. Approach to hyponatremia
9. Complications of mechanical ventilation
10. Total Parenteral Nutrition

Paper III : Trauma and surgical emergencies

Amrita Viswa Vidya Peetham

Dept. of Emergency Medicine

Time:- 3 Hours

Marks :- 100

Each question carries 10 marks:-

Discuss following questions under these subheadings

1. Etiology
2. Clinical picture
3. Management

Each question carries 10 marks:-

4. Colles fracture
5. Compartment Syndrome
6. Management of polytrauma victims
7. Traumatic paraplegia
8. Pneumothorax tension and traumatic
9. Acute appendicitis
10. Torsion testis
11. Ectopic pregnancy
12. Epistaxis
13. Maxillofacial injury

Paper IV : Recent advances in Emergency and critical care medicine

Amrita Viswa Vidya Peetham

Dept. of Emergency Medicine

Time:- 3 Hours

Marks :- 100

Each question carries 10 marks:-

1. Recent advances in Mechanical ventilation in ARDS
2. Recent advances in Septic Shock

3. Recent advances in Atrial Fibrillation
4. Recent advances in GI Bleed
5. Recent advances in Stroke
6. Recent advances in Diabetes Keto-acidosis
7. Recent advances in Seizures
8. Recent advances in Cerebral Malaria
9. Recent advances in Transfusion Medicine
10. Recent advances in Ventilator Associated Pneumonia

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