

THE TAMIL NADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI.

SYLLABUS FOR
POST – DOCTORAL FELLOWSHIP PROGRAMME IN
EMERGENCY MEDICINE

Basic Principles in Paediatrics Emergency Medicine

AIRWAY – ANATOMY / PHYSIOLOGY / RECOGNITION DIFFICULT AIRWAY

Knowledge

Respiratory physiology in infants and children

Fluid and electrolyte regulation in infants and children

Thermoregulation in infants and children

Pathophysiology of the immune system in infants and children

Mechanisms of Disease

Mechanisms of Hypoxia – Ischemia

Mechanisms of Inflammation

Mechanisms of Cellular communication and Signal

Approach to a Sick Child and Resuscitation

Recognition and evaluation of a sick child

Basic Mechanisms of Resuscitation

Resuscitation of the Critically Injured

Sudden Unexpected Death

Post Arrest Support

Skill

Cardiopulmonary Resuscitation

Transport of critically ill and injured child

Pathophysiology and Treatment of Respiratory Problems

Knowledge

Principles of oxygen delivery and assisted ventilation

Respiratory monitoring

Airway maintenance methods limitations and hazards

Upper airway obstruction

Foreign body in the airway

Infections of the airway and lungs

Acute airway bronchospasm including status asthmaticus

Airway injury, smoke / burns, aspiration and chemical pneumonitis

Chest trauma and flail chest

Pneumothorax and hemothorax

Respiratory failure

Acute respiratory distress syndrome

Drowning

Arterial and venous blood gas interpretation

Skill

Maintenance of open airway

Suctioning

Oxygen delivery devices use and limitations

Pulse oximeter use and limitations

Nebuliser and Metered dose inhaler use and limitations

Assisted ventilation using self inflating and flow inflating bag

Tracheal intubation including rapid sequence intubation

End tidal CO₂ monitoring

Use of Laryngeal mask airway

Thoracentesis and chest tube insertion

Percutaneous cricothyrotomy

Procedural sedation

Pathophysiology and treatment of cardiovascular problems

Knowledge

Shock Hypovolemic and Haemorrhagic
 Distributive
 Cardiogenic
 Obstructive

Cardiovascular monitoring and evaluation

Congestive heart failure

Hypercyanotic spell

Cardiac Arrhythmias recognition and management

Hypertensive urgencies and emergencies

Acute features of Cardiomyopathies and Myocarditis

Acute pericardial disease and pericardial tamponade.

Infective endocarditis

Rheumatic carditis

Vasoactive medications

Electrocardiography – Basics and interpretation

Applications of echocardiography in the emergency room

Skill

Arterial and venous cannulation

Use of devices for intravenous cannulation

12 lead ECG.

Use of Cardiac monitor

Use of infusion devices for vasoactive medications

Pericardiocentesis

Intraosseous access

Electrical Cardioversion and Defibrillation

Pathophysiology and treatment of Gastrointestinal and Genitourinary Problems

Knowledge

Upper GI bleeding

Lower GI bleeding

Fulminant hepatic failure, hepatic encephalopathy

Acute Pancreatitis

Foreign bodies in the alimentary tract,

Obstructive uropathy and acute urinary retention,

Bleeding from the urinary tract.

Skill

Placement of NGT

Abdominal Paracentesis

Pathophysiology and management of Renal problems

Knowledge

Renal failure acute and chronic, prerenal, renal and post renal

Acute pyelonephritis

Renal tubular and glomerular disorders

Skill

Urinary bladder catheterization

Suprapubic puncture

Pathophysiology and treatment of Nervous system disorders

Knowledge

Altered consciousness - Metabolic
Traumatic
Toxic
Infective
Vascular
Tumors
Anoxie Ischemic

Intraaerial pressure, physiology, monitoring and pathophysiology

Status epilepticus

Guillain Barre syndrome

Stroke

Septic arthritis

Pneumonia

CNS Infections

Tetanus, Diphtheria and tropical infections

Antibiotics, Antiviral and Antifungal medications indications use limitations and adverse effects.

Emergency Protocols for Management

Skill

Blood sampling for culture

Toxicology, Pharmacokinetics, clinical presentation and management

Toxidromes

Recognition of envenomation by common venomous animals and poisonous plants
their clinical presentations and treatments

Technique of handling a contaminated patient in the emergency department and the
pre hospital environment

Stabilization decontamination and enhancement of elimination of toxins.

Common therapeutic drug poisonings, drugs of abuse, natural toxins, and general
household poisons.

Basic principles of toxin absorption, redistribution, metabolism, and elimination.

Fundamentals of poisoning epidemiology, pharmacokinetics, and biotransformation.

Use of antidotes and antivenoms and knowledge about substance abuse.

Use of adjunctive services, including the toxicology laboratory and poison center, in
the management of acute poisonings.

Laboratory diagnosis in toxicology including methods, limitations and costs.

Skill

Gastric lavage

Appropriate use of absorbent and antivenin

Hematological emergencies their pathophysiology and treatment.

Knowledge

Acute hemolytic disorders

Acute defects in hemostasis

Principles of transfusion
Blood component therapy

Neonatal Emergencies

Skill

Interpretation of coagulation studies and hematological indices

Dermatological Emergencies in Pediatrics

Toxic epidermal necrolysis and Steven Johnson Syndrome

Urticaria

Exanthems and vesiculobullous disorders

Dermatological infections

Pediatric Surgical Emergencies and their pathophysiology and management

Knowledge

Acute abdomen including gastrointestinal obstructions and infections.

Polytrauma CNS trauma skeletal trauma, Chest trauma, Abdominal trauma

Burns

Skill

Cervical spine immobilisation

Focused Abdominal Sonography

Diagnostic Peritoneal Lavage

Radiology in Paediatric Emergencies

Knowledge

Interpretation of standard and portable radiographs of chest, abdomen and skeletal system.

Interpretation of Computerised tomogram

Interpretation of Magnetic resonance imaging

Basic Ultrasonography in Pediatrics emergencies

Echocardiography, Doppler, Vascular ultrasound

Skill

Abdominal chest and vascular ultrasound

Bedside echocardiogram.

Administration, ethical, Legal and Economic considerations

Organising, Staffing, record keeping and quality assurance methods

Financial issues in the Emergency Room

Dealing with Death and dying

Psychosocial aspects of life threatening illness on patients and families

Psychosocial Emergencies

Child Abuse

Psychiatric Emergencies

Emergency Medical Services

Paediatric Prehospital Care

Interfacility Transport

Setting up Paediatric Emergency Service