THE TAMILNADU DR MGR MEDICAL UNIVERSITY, CHENNAI.
SYLLABUS
FOR POST - DOCTORAL FELLOWSHIP PROGRAMME IN INTENSIVE CARE

Clinical training:

Fellows coordinate care for patients from all medical and surgical paediatric sub specialities. They are expected to provide hands on patient care, as well as supervise and direct patient care provided by residents. They will gain experience in the recognition, triage and management of a wide variety of acute illnesses and performance of invasive procedures. The fellows will develop expertise in pre-sedation screening, the use of sedative and analgesic medications, patient monitoring and airway management techniques. All of this will take place under direct attending supervision. The fellows are expected to maintain a log book

Educational activities:

Focused clinical curriculum is centred on weekly conferences, journal club, chapter review, research meetings and morbidity and mortality conferences. Fellows receive formal education in biostatistics and study design, ethical and legal aspects of critical illness.

Research:

Identify topic of interest and perform literature search and design the study. Get IRB approval , do data collection, analyse data, submit research for publication in peer reviewed journal.
By the end of fellowship, fellows should have sent 2 case reports for publication.
Presenting papers in conference is desirable

Mandatory requirements:

PALS Certification (before starting fellowship)
PEMC Certification
PALS and PEMC Instructor is encouraged.
Attend at least one national conference in Paediatric critical care.

Mandatory rotations:

Anaesthesia- Early in the first year, one month to gain experience in airway management and vascular access in the operating room.
Paediatric Emergency- one month
Cardiothoracic surgery – One month

Elective rotations

*Renal replacement therapy and Toxicology -2 weeks
Paediatric Pulmonology- 2 weeks (To learn Fiberoptic bronchoscopy)

Evaluation:

They will be evaluated through out their postings on
1) Their ability to care for the critically ill children – clinical knowledge, procedural skills ,decision making, team spirit, resuscitation skills.
2) Their interaction with parents, patients,
3) Their interaction with residents, other staff members
4) Teaching skills
5) Ethical aspects in critical care
At the end of the fellowship course there will be a viva voice and practicals .The fellows should pass both separately to get the fellowship certificate.

CURRICULUM FOR THE PEDIATRIC CRITICAL CARE FELLOWSHIP COURSE

Skills:

All of the following skills as applicable to practice of Pediatric Critical Care

Respiratory:

Maintenance of open airway, Suctioning the airway
Endotracheal intubation (oral and nasal)
Cricothyrotomy
Placement of an intercostal tube
Ventilation by bag and mask and Bains circuit
Setting and changing modes of ventilation as per needs
Weaning from mechanical ventilation
Interpretation of arterial and mixed venous blood gases
Tracheostomy (desirable)

Interpretation of pulmonary function tests including bedside spirometry (desirable).

Cardiovascular :

ECG interpretation
Placement of central venous catheter (by different routes)
Placement of arterial catheter (by different routes)
Implementation of cardiovascular support (inotropic therapy)
Pericardiocentesis in acute tamponade
Antiarrhythmic therapy
Cardioversion and defibrillation
Thrombolysis

Neurologic

Basic interpretation of CT Scan/ MRI, EEG
Brain death protocol – calorie test, apnoea test
Intracranial pressure monitoring (desirable)

Metabolic & Nutritional –

Implementation of intravenous fluid therapy, enteral and parenteral nutrition

Hematologic

Interpretation of a coagulation profile and correction of homeostatic and coagulation disorders (anticoagulation and fibrinolytic therapy). Implementation of blood component therapy.

Renal: Bladder catheterization, Peritoneal dialysis, other methods of renal replacement techniques (desirable)

Toxicology: Gastric lavage, activated charcoal administration, Whole bowel irrigation

Psychosocial :

An Understanding of the effect of life threatening illnesses on patient and their families, and death and dying, and effectively communicate with the child and the family

General

- Has acquired skills in educating medical and paramedical professionals.
- Has acquired skills in handling the PICU equipments.
- Is oriented to principles of research methodology.
- Has acquired the skill of organizing HDU, PICU and ER

SYLLABUS

(I) EMERGENCY RESUSCITATION & ACUTE AIRWAY MANAGEMENT

Cardiopulmonary resuscitation
Airway management in pediatric critical care
Transportation of Critically ill children

(II) RESPIRATORY FAILURE

Developmental physiology of Resp System.
Upper airway obstruction, including foreign bodies, infection and burns
Lower airway disease: bronchiolitis and asthma
Acute respiratory disease Syndrome (ARDS)
Neuromuscular disease and respiratory failure.
Chronic lung disease in infants and children
Principles and practice of Respiratory Support, mechanical ventilation and weaning.
Respiratory monitoring (pulse oximetry, capnography)
Oxygen therapy

(III) CARDIAC & CIRCULATORY FAILURE

Developmental Cardio-vascular physiology
Cardio respiratory interactions
Arrhythmias and their management
Shock and multi organ system dysfunction
Hypertensive emergencies
Cardiogenic pulmonary edema, Cardiomyopathies
Post operative management of the Cardiac surgical patient
Unusual causes of Myocardial ischemia, pulmonary edema and cyanosis
Hemodynamic monitoring relevant to Paediatric Critical Care.

(IV) NEUROLOGIC INTENSIVE CARE

Evaluation of a comatose child
Pathophysiology and management of raised intracranial pressure
Monitoring of central nervous system
Theories of Brain resuscitation
Meningitis, Infectious Encephalopathies and other Central Nervous system Infections.
Status Epilepticus

Reyes syndrome and metabolic encephalopathies
Head and spinal cord injury
Cerebrovascular disease and vascular anomalies
Paediatric Drowning and near drowning
Brain Death, Organ, Donation and withdrawal of life support

(V) IMMUNOLOGIC AND INFECTIOUS DISEASE CONSIDERATIONS

Overwhelming sepsis, SIRS, MODS
Severe infection due to aerobic and anaerobic bacteria, viruses, fungal and parasites.
Primary and Secondary Immunodeficiency
The critically ill child with human immunodeficiency virus (HIV) infection
Nosocomial infections
Principles of antibiotic selections and dosage schedules for Immunotherapy in critical illnesses.

(VI) NUTRITION AND GASTROINTESTINAL EMERGENCIES

Nutrition and metabolic changes in critical illness
Principles of enteral and parenteral nutrition
Gastrointestinal and hepatic failure
GIT bleeding, peritonitis
Issues in Liver transplantation
Abdominal trauma, abdominal surgery, bowel obstruction

(VII) RENAL, ENDOCRINE AND METABOLIC DISORDERS :

Acute Renal Failure and renal replacement therapy
Renal disorders requiring Intensive Care
Endocrine, Mineral and Metabolic Disease in Paediatric Intensive Care

(VIII) HEMATOLOGIC & ONCOLOGIC

Hematologic Disorders requiring Intensive Care
Intensive Care Management of the Child with malignant diseases.
Principles of anticoagulation, fibrinolytic therapy and blood component therapy.

(IX) SPECIFIC POISONINGS & ENVIRONMENTAL EMERGENCIES

Intensive Care Management of common Poisonings.
Environmental Hazards: hypo-and hyperthermia, near drowning, electrocution, radiations, chemical injuries, animal bites.

(X) SURGICAL AND ANESTHETIC CONSIDERATIONS

Multiple trauma in the Paediatric patient
Neuroendocrine response to stress
Analgesia, Sedation and post operative management in the Paediatric ICU. Principles of neuromuscular blockade in the critically ill patient.

(IX) PICU ADMINISTRATION

- Pediatric Intensive Care Nursing
- Continuous quality improvement in the Pediatric Intensive Care Unit
- Ethical and legal aspects of Critical Care including `Do not resuscitate' orders, principles of informed consent, withholding and withdrawing life support, organ donation.
- Outcome analysis including Measurement of severity of illness using PRISM, PIM and TIS scores

(XI) GENERAL

Pharmacology, pharmacokinetics and drug interactions.
Transport of the critically ill child.
Management of the organ donor.
Participation in regional and national CME's seminars and conference in critical care and affiliation with such critical care organization is essential.