
FELLOWSHIP IN PEDIATRIC INTENSIVE CARE

D Y PATIL UNIVERSITY, KOLHAPUR

DEPARTMENT OF PEDIATRICS
D Y PATIL MEDICAL COLLEGE, KOLHAPUR

Fellowship Course in Pediatric Intensive Care (FPIC)

Introduction

Pediatric Intensive Care has become a rapidly growing branch in the past decade in India, but still it is in its developing stage in most places in the country. There are only few centers where satisfactory Pediatric critical care teaching is available.

The present fellowship course is designed keeping in mind the need for learning the common Pediatric emergencies, basics of intensive care & monitoring, advanced mechanical ventilation and life support. This fellowship course is planned keeping in mind the need of Pediatric intensive care being delivered to periphery, so that the Pediatrician trained as the Fellows at this institute will be able and confident delivering the PICU services to the hospitals/teaching institutes they wish to practice, with the state of the art knowledge and adequate experience.

Aims:

1. To implement the curriculum to train the qualified Pediatricians in understanding the basics of Pediatric emergency and intensive care medicine, simultaneously working towards progressive positive outcomes in the form of morbidity and mortality
2. To train the Pediatricians to develop skills and experience in early detection and management of Pediatric critical illnesses
3. To train the Pediatricians in basic and advanced mechanical ventilation and day to day care of a critically ill child
4. To train the Pediatricians in clinico- academic activities through various teaching programs, research, and publications related to Pediatric intensive care

Details of the Certificate Course:

1) **Name of the certificate course:** “*Fellowship Course in Pediatric Intensive Care (FPIC)*”

2) **Duration of the course:** 12 months/ 2 semesters.

3) **Eligibility criteria for admission and intake capacity.**

Eligibility criteria: MD (Pediatrics) /DNB / DCH

Additional postings are suggested in following areas for period of 2 weeks

each :- a) Cardiac Surgery

b) Neurosurgery

c) Chemotherapy unit

d) Intensive care with advance facilities

Intake Capacity: As per University regulations.

Duty hours : to be specified

• Set up and categorization of PICU :-

* PICU with level III facility (Based on infrastructure/facilities/patient work load with diagnosis)

* Mandatory Protocols :- written stepwise protocols with reference to standard international protocol (with suitable modifications for Indian scenario)

4) Curriculum of PICU:

1. Basic training in Pediatric emergencies and intensive care
2. Clinical skills in procedures, understanding equipments, monitoring and resuscitation
3. Mechanical ventilation
4. Allied posting in Pediatric surgery and anesthesia- 1 month
5. research programs, teaching skills
6. Designing a PICU: replica creation

Basic training in Pediatric emergencies and intensive care:

- Emergency and critical Pediatrics: Scope and need
- Pediatric emergency resuscitation and Pediatric advanced life support, and life saving procedures
- Common Pediatric emergencies

- Shock
 - Sepsis and Hospital acquired infections
 - Convulsion and Status epilepticus
 - Respiratory distress
 - Cardiac emergencies including arrhythmias, CCF
 - Tetanus
 - Burns
 - Snake Bite & Scorpion
 - Envenomation –snakebite, scorpion bite
 - Near drowning
 - Hemorrhagic
 - Syncope
 - Anaphylaxis
 - Hypertension
 - Diabetic ketoacidosis
 - Inborn error of metabolism :- Diagnosis/Immediate evaluation/screening and lab diagnosis/immediate measures (e.g.: Supplement, dietary restriction,intervention)
 - Poisoning - diagnosis and management antidotes
 - Access to rare antidotes/literature/websites
 - Neurological emergencies including ICP and coning
 - Approach in a case of suspected brain death
 - Taking care of a PICU child: basic nursing
 - Taking care of a PICU child: anesthesia and analgesia
 - Trauma, head injury and other surgical emergencies
 - Transporting a sick child
 - Safety and Bio waste managements
 - Investigations in PICU: including radiology
 - PRISM- PIM Score
 - Record keeping in PICU

7. Inclusion/Emphasis on following topics is suggested

8. Poisoning

Common : diagnosis and management

Unknown : The universal antidotes and immediate measures

Rare : Access should be available/Literature/Website/and access to rare antidotes

Inborn errors of Metabolism :

Clinical skills in procedures, understanding equipments, monitoring and Resuscitation

- Asepsis and anesthesia and decision making in PICU emergency procedures
- Procedures in emergency medicine: tracheostomy, bronchoscopy,
- Needle drainage, Rapid IV access
- Rapid sequence intubation
- NVascular / Central line access: Jugular, subclavian, femoral and cut down access
- Arterial catheterization
- Intraosseus line
- Ventricular tap and VP shunt
- Pleuro- and peritoneocentesis
- Peritoneal dialysis
- Difficult intubations
- Monitoring: Needs, modalities and action
- Resuscitation:
 - o Pediatric advanced life support: CPR, intubation and medicines
 - o Monitoring a resuscitated child
- Equipments
 - o

Invasive and noninvasive equipments

- o Multichanel Monitors, defibrillators
- o Nebulisers, suction, O2 delivery systems
- o Ventilators
- o Machines: ECG, Doppler, Echo
- o EEG and ICP monitoring
- o Maintenance and record keeping

PICU Pharmacology

Mechanical ventilation

- Basic physiology of respiratory system in a child
- Need for artificial ventilation
- Modalities and machines: know your ventilators
- ABG analysis; ABG actions
- Ventilation modes and needs, Airway dynamics
- Ventilation graphics, HFO, Trouble shootings
- Controlled ventilations, Assist ventilations
- Care of a ventilated child; Weaning from ventilators
- CPAP, Tracheostomy, VAP
- ARDS and its management

Allied posting in Pediatric surgery and anesthesia

Curriculum as per the respective departments, aimed at anesthesia, analgesia and perioperative issues related to fluid and airway dynamics and drugs

Research programs, teaching skills

- Clinical Core competency skills : development and assessment
- Research dissertation completion
- Organizing a CME
- Representation in conferences
- Writing a paper and basics of statistics
- Staying in touch and staying updated: Virtual PICU

Designing a PICU: replica creation

- Understanding a need for PICU at periphery
- Point of Care PICU
- PICU designing: budget , management and maintenance
- Implementing a PICU protocol and a teaching program

Elective Subjects:

1. 2D ECHO

1. PHYSICS & PRINCIPLES OF ECHOCARDIOGRAPHY.
2. ROLE OF ECHO IN NICU.
3. FUNCTIONAL ECHOCARDIOGRAPHY.
4. CHD-1.
5. CHD-2.
6. CHD-3.
7. ACQUIRED HEART DISEASE-1.
8. ACQUIRED HEART DISEASE-2.
9. COLOUR DOPPLER.
10. ROLE OF ECHO IN PICU.

2. USG

1. PHYSICS OF USG.
2. NORMAL USG ORIENTATION.
3. NEUROSONOGRAPHY.
4. ABDOMINAL LUMP.
5. RENAL DOPPLER.
6. SOFT TISSUE SWELLING & CDH.
7. USG GUIDED PROCEDURES –PLEURAL EFFUSION, VENTRICULAR TAP.
8. FNAC, BIOPSY.
9. ACUTE ABDOMEN ROLE.
10. USG IN SPECIAL CONDITION.

FOUR LECTURES ON EACH TOPIC.

TOTAL 40 LECTURES ON ECHO & 40 LECTURES ON USG.

5. Teaching scheme:

- Daily teaching clinical rounds & case discussions,
- Bedside clinics and discussions
- Monthly critical care audit meets, Success cases discussions
- Discussions on mortality data
- Monthly statistics of the unit
- Equipment maintenance
- Classroom lecture series
- Lectures on advances in Pediatric critical care
- Guest lectures: Bimonthly multidisciplinary international & national faculty
- Seminars
- Antimicrobial and infection control policies
- Journal reading and advances in therapeutics
- Case presentations: twice a week
- Hands on supervision of procedures

6. Course evaluation:

After completion of curriculum the candidates will be evaluated through dissertation, written and practical examination, conducted by two Pediatric intensivists independently.

7. Infrastructure:

- Faculty will be from the Department of Pediatrics
- In house PICU library is required
- Dedicated Pediatric intensive care unit and equipments

8. Certification: Certificate will be awarded on successful completion of the course with minimum 80% attendance.

9. Textbooks:

- Textbook of Pediatric Intensive Care (Dr P Khilnani)
- Mechanical Ventilation (Chnag)
- Pediatrics Intensive Care (Tobias)
- IAP Textbook of Pediatric Intensive Care

- Pediatric Emergencies (Meherban singh)
- Nelson Textbook of Pediatrics

TITLE OF PROGRAM: Fellowship course in Pediatric Intensive Care

Duration of Program: One year

Number of Semesters: 2

Number of Papers: 4

Core Papers: (60% weightage of marks) [List syllabus for each paper]

1. Basic sciences, fetal medicine & General Neonatology Investigation and Imaging
2. Designing PICU, Maintaining asepsis in PICU, procedures, equipments, Recent advances, Allied, Medico-Legal issues, metabolic disorders.

Elective Papers: (25% weightage of marks)

Discipline-related: (Allied specialty, Diagnostic modalities, Sub-specialty)

1. EEG
2. 2 D-Echo-Cardiography & Color Doppler

Foundation Papers: (15% weightage of marks – only compulsory)

- Compulsory:
1. Research Methodology
 2. Medical Ethics

- Value-based (any1):
1. ATCOM
 2. Computer skill
 3. Marathi language

Semester wise Paper distribution (Core, Elective & foundations as may be applicable):

1. Semester 1:

Core: Basic sciences, pediatrics emergencies, mechanical ventilation, liquids, ABG,

Investigations

Foundation: Research Methodology/Medical Ethics

2. Semester 2:

Core: Designing PICU, Maintaining asepsis in PICU, procedures, equipments, recent advances, Allied, Medico-Legal issues, metabolic disorders.

Elective: 2 D Echo/EEG

Foundation: nil

1 Semester = 450 Hours / 90 Days / minimum 15-18 weeks

	SEMESTER 1			SEMESTER 2		
	Hours	Per Week	Credits	Hours	Per Week	Credits
Core	45	2	3	45	2	3
Elective-Discipline	-	-	-	30	2	2
Elective-Generic	-	-	-	-	-	-
Foundation – Compulsory	45	2	3	-	-	-
Foundation – Value Based	10	1	-	10	1	-
Practicals	350	16	11	365	17	12

Assessment for credit courses (Absolute grading method):

Marks	93%	84%	77%	70%	63%	56%	49%
Letter grade	A+	A	B+	B	C+	C	F
Grade	10	09	08	07	06	05	00

point							
-------	--	--	--	--	--	--	--