



# **MGM INSTITUTE OF HEALTH SCIENCES**

**Accredited by NAAC with 'A' Grade**

(Deemed University u/s 3 of UGC Act, 1956)

Sector-01, Kamothe, Navi Mumbai - 410 209

Tel 022-27432471, 022-27432994, Fax 022 - 27431094

E-mail : [registrar@mgmuhs.com](mailto:registrar@mgmuhs.com) ; Website : [www.mgmuhs.com](http://www.mgmuhs.com)

## **Curriculum for Fellowship in Dual Neonatology & Paediatric Intensive Care**

**(w.e.f. Academic Year 2018-19)**

Approved as per BOM –53/2018, [Resolution No. 4.8], Dated 19/05/2018





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### **FORMAT FOR SUBMISSION OF PROPOSAL/ FELLOWSHIP COURSE**

1. Title of the fellowship : **DUAL NEONATAL AND PEDIATRIC INTENSIVE CARE FELLOWSHIP**
2. Duration of the fellowship : 1 year 6 month (18 Month)
3. Commencement (2 batches) : a) 1<sup>st</sup> June, 2018 b) 1<sup>st</sup> December, 2018

**OBJECTIVES OF THE FELLOWSHIP:** To enhance knowledge and skills in intensive care area of Pediatrics in Doctors who like to work in semi urban and rural area to bring out positive outcomes related to mortality and morbidity.

4. Eligibility Criteria for Admission: D.C.H.
5. Intake Capacity in each batch :2
6. Admission/Selection Process/Procedure: PG NEET Score and personal interview
7. Fees :150000/-
8. Course Content :ANNEXURE
9. Teaching Scheme (Total periods and periods allotted to each topic)- ANNEXUREII
10. Complete Curriculum of the Course: ANNEXURE III
11. Textbook and Reference Books :
12. Scheme of Examination (in detail) : 3 monthly formative assessments Project –given at end of 2month

#### **PATTERN OF EXAM-**

Final theory exam -2 papers 100 marks each

Practical examinations with two internal and two external examiners with subspecialty excellence

Practical examination -200 marks

Internal assessment and project work-50 marks each

Total marks -500

Passing criteria-50% in each criteria

Award of fellowship- at end of result by university

13. Infrastructure required for conducting the course and its availability in the College/Hospital –  
20 bed NICU, 10 beds PICU

14. Faculty required (with qualification) for conducting the course:

Dr Bageshree Seth, Professor Department OF Pediatrics

Dr. Jeetendra Gavhane, D.N.B., Professor Department OF Pediatrics

Dr. Vikas Gupta, M.D., Fellowship NICU (MUHS)

Dr. Vivek Bhagat M.D., Fellowship PICU (MUHS)



Programme Coordinator  
Dr. Bageshree Seth



Head, Dept. Of Pediatrics  
Dr. Vijay Kamale

**PROFESSOR & HOD**  
Dept. of Paediatrics,  
MGM Medical College Hospital,  
Kalambeli, Navi Mumbai - 410 210

**PROGRAMME OUTCOME:**

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 neonate.
4. To train the Pediatricians in clinico-academic activities through various teaching programs, research, and publications related to Pediatric intensive care

**SYLLABUS:**

**Fellowship is Self Study based, interactive and coordinated approach of common topics:-**

**Neonatal: A. to know about Demography and Neonatal Health Programmes**

- Vital statistics, health system
- Causes of neonatal and perinatal mortality
- Neonatal care priorities
- Care at primary health centre
- Care of secondary level
- Role of different health functionaries
- National programmes pertaining to newborn care

**B. To revise and consolidate Basic Sciences**

- Feto-placental physiology
- Neonatal adaptation
- Fluid and electrolyte balance
- Blood gas and acid base disorders
- Thermoregulation and kangaroo Mother Care
- Basic science related to systems

**C. To gain information Fetal Medicine**

- Fetal and neonatal consequences of high risk pregnancy
- Fetal monitoring: Clinical, electronic, invasive and non-invasive
- Intrapartum monitoring and procedures
- Medical diseases affecting pregnancy and fetus
- Fetal nutrition and growth
- Birth defects

**D. to have experience of General Neonatology related to practice in community**

- Neonatal resuscitation
- Birth injury and birth asphyxia
- Normal newborn and common neonatal problems
- Preterm and low birth weight neonates
- Bioethics in Neonatology

- Pain Management
- Stress in NICU, Prevention and Management
- Assessment of gestation, neonatal behaviour, neonatal reflexes
- Developmental assessment, detection of neuromotor delay, developmentally supportive care
- Immunization including immunization of a preterm neonate
- Discharge planning
- Follow – up of high risk neonate
- Neonatal transport
- Neonatal equipments
- Neonatal Procedures
- Organization of neonatal care including level I, II care

## **E. To get acquainted with Systemic neonatology**

### **1. Respiratory System**

- Developmental biology, Pulmonary Surfactant
- Examination and interpretation of respiratory signs and symptoms
- Congenital malformations of respiratory system
- Pulmonary diseases: Hyaline membrane disease, transient tachypnea, pulmonary haemorrhage,
- Persistent fetal circulation, developmental defects Meconium aspiration syndrome
- Apnea
- Oxygen therapy and its monitoring
- Neonatal ventilation: principles and practices
- Pulmonary infections

### **2. Cardiovascular System**

- Fetal circulation, transition from fetal to neonatal physiology
- Examination and interpretation of cardiovascular investigations
- Congenital heart diseases
- Shock: pathophysiology, monitoring, management
- Congestive cardiac failure
- Persistent Pulmonary Hypertension of the Neonate (PPHN)
- Patent Ductus Arteriosus (PDA)
- Hypertension in neonates
- Other cardiac disorders

### **3. Gastrointestinal system and hepatobiliary system**

- Disorders of liver and biliary system
- Bilirubin metabolism
- Neonatal jaundice: diagnosis, monitoring, management (Phototherapy) Exchange transfusion and others)
- Conjugated hyperbilirubinemia
- Congenital malformations
- Necrotising enterocolitis
- Diarrheal diseases
- Gastro Oesophageal Reflux
- Gastro Intestinal Haemorrhage

### **4. Renal System**

- Developmental disorders

- Renal functions
- Acute renal failure
- Urinary tract infection

#### **5. Endocrine and Metabolic**

- Hypoglycaemia, hyperglycaemia Infant of a Diabetic Mother
- Calcium, magnesium and electrolyte disorders
- Pituitary, thyroid & adrenal disorders
- Ambiguous genitalia
- Inborn errors of metabolism
- Other endocrine and metabolic disorders

#### **6. Haematology**

- Clinical evaluation of a neonate with haematological problems
- Anaemia
- Polycythemia
- Bleeding and coagulation disorders
- Rh and ABO haemolytic disease
- Hydrops fetalis: immune and non-Immune
- Other haemolytic disease

#### **7. Neurology**

- Neurological evaluation
- Neonatal seizures
- Intracranial haemorrhage
- Hypoxic ischemic encephalopathy
- CNS malformation and neural tube defects
- Developmental assessment
- The Floppy Infant

#### **8. Nutrition**

- Breastfeeding
- Lactation management
- Lactation counselling and education
- Recommended daily requirements of nutrients
- Enteral feeding in special situations including LBW/preterm neonate
- Vitamins and micronutrients in newborn health and disease
- Parenteral nutrition

#### **9. Surgery, Orthopaedics, dermatology, eye etc**

- Neonatal surgical conditions
- Pre and post operative management
- Neonatal Orthopaedic problems: Congenital and acquired
- Neonatal Ophthalmology- Retinopathy of prematurity ,other
- Neonatal Dermatology – Common problems, life threatening conditions

#### **10. Neonatal Infections**

- Developmental Immunology
- Intrauterine Infections
- Perinatal HIV
- Bacterial infection

- Viral infections
- Fungal infections
- Septicaemia
- Meningitis
- Osteomyelites and arthritis

**Pediatric intensive care:** To learn Basic training in Pediatric emergencies and intensive care emergency resuscitation and Pediatrics advanced life support, and life saving procedures Common Pediatric emergencies.

1. To evaluate sick child in office and clinic
2. To learn about emergency medical services for children

- Interfacility transport of seriously ill or injured pediatric patient and principles applicable to the developing world
- Emergency resuscitation
- Taking care of a PICU child: basic nursing
- Neurologic emergency and stabilization including brain death
- Shock/Diagnosis/Immediate evaluation/screening and
- Respiratory distress and failure-mechanical ventilation and long term ventilation
- Poisoning -diagnosis and management antidotes -Access to rare antidotes/literature/websites  
Neurological emergencies including ICP and coning)

- anesthesia and analgesia Trauma head injury and other surgical emergencies
- Transporting a sick child
- Investigations in PICU: including radiology

Assessment-PRISM-PIM Score

- 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, Vascular / 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:
- Basic physiology of respiratory system in a child
- Safety and Bio waste managements
- Record keeping in PICU

## CURRICULUM:

1. Posting in PICU and NICU round the clock
2. Additional postings are suggested in following areas for period of 2 weeks each :-
  - a) Cardiac Surgery
  - b) Neurosurgery
  - c) Chemotherapy unit

### 3. INTENSIVE THEORY TEACHING PROGRAMME

There are a series of regularly-scheduled conferences, seminars and lectures that trainees are required to attend:

Clinical Seminars (Monday, 2 p.m.) – faculty and local invited speakers deliver information on topics of special interest and updates on diagnosis and treatment of various pediatric disorders.

Resident/Fellow Core Lecture Series: (Monday, 4 – 5 p.m.) – this series is designed specifically for residents and diagnostic laboratory fellows and covers a wide range of topics including basic concepts, population dynamics, genetic counseling/communication skills and specific lectures

Biochemical Results Review: (Tuesday, 11 a.m. – Noon) – Laboratory directors & fellows and Metabolic faculty & residents review biochemical laboratory results from the prior week and discuss results and patient management.

Seminar Series (Wednesday, Noon - 1 p.m.) – A monthly seminar series where intensivists from all over the country are invited by the Department's research faculty to come and speak about their work.

Post-clinic Conference (Friday, 4 – 5 p.m.) – Selected patients from the outpatient and inpatients clinics are reviewed with video of salient findings and lab results.

Grand Rounds (Friday, Noon – 1 p.m.) – Genetics residents present an individual clinical case and discuss the diagnostic approach, prognosis and management.

**Mortality meeting:** first Thursday of every month 2 00 pm

### TEXTBOOK AND REFERENCE BOOKS:

1. Avery's Disease of the Newborn:
2. Fanaroff and Martin's Neonatal-Perinatal Medicine:
3. Rennie and Robertson's textbook of Neonatology:
4. Manual of Neonatal care- CIOHARTY
5. Assisted ventilation of the Neonates –Goldsmith(international) AND Khilnani (Indian)
6. The Neurological assessment of the preterm and fullterm newborn Infant- Dubowitz
7. Rogers' Textbook of Pediatric Intensive Care by Donald H Shaffner, MD, David G Nichols, MD
8. Pediatric Critical Care Study Guide: Text and Review Steven E Lucking
9. Textbook of Pediatric Emergency Procedures by Christopher King, MD (Editor), Fred M Henretig, MD (Editor), Brent R King, MD
10. Childhood Emergencies in the Office, Hospital, and Community: Organizing Systems of Care by American Academy of Pediatrics, James S Seidel (Editor), Jane F Knapp (Editor)