Curriculum for

Post-Doctoral Fellowship Course

In

**Paediatric Radiology**

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**SRI AUROBINDO UNIVERSITY**

SAIMS HOSPITAL CAMPUS, Indore Ujjain, State Highway, Bhawrasla, Indore, Madhya Pradesh 453555

# FELLOWSHIP IN PAEDIATRIC RADIOLOGY

**SYLLABUS**

**TRAINING SPECIFIC OBJECTIVES**

**A- X-RAY AND SPECIAL INVESTIGATIONS**( Fluoroscopic studies of the neonatal and pediatric patient)

1. Review and interpret pediatric X-RAYS examinations on a daily basis
2. Demonstrate use of the different pediatric imaging techniques and methods
3. Identify patients that may require sedation and list indications and contraindications
4. Risk factors – contrast agents, radiation

**B-Ultrasonography and Colour Doppler**

1. Neonatal brain ,Ultrasonography of the neonatal and pediatric neck,
2. Ultrasonography of chest, abdomen, pelvis, musculoskeletal system,small parts and vascular system
3. Trans cranial Doppler study in child with sickle cell anemia- ICMR Project

**C- CT and MRI** of the Brain, neck, chest, abdomen, pelvis, and musculoskeletal systems, with sequences adapted to the pediatric patient

-Imaging protocols adapted to the neonate, young child and older child

- Recognize and differentiate normal from abnormal imaging findings in a variety of pediatric diseases of Brain, neck, chest, abdomen, musculoskeletal system, vascular system and neonatal brain.

**Central Nervous System-**

-List the main clinical findings and management

-The neonatal and infant brain-Normal development in premature and term neonates and infants - Hypoxic-ischemic encephalopathy

-Neonatal intracranial hemorrhage

Congenital anomalies of the brain and Genetic syndromes in children: Intracranial infections

Intracranial S.O.L.-Neurofibromatosis ,Tuberous sclerosis complex, hemihypertrophy syndromes Osteochondrodysplasias, ,Tumors of the face, skull and brain

Trauma in children: Bony and visceral trauma in infants, including non-accidental trauma Stroke -Thrombosis of the venous and arterial systems,Vascular anomalies

**Pediatric Neck-**

Tumors of the neck ( Vascular and nonvascular) Infection and Lymphadenopathy

Thyroid Gland Salivary glands **Pediatric Chest-**

Hyaline Membrane disease Infections of the chest,

Pediatric cardiovascular disease/ Congenital and Acquired cardiovascular disease Mediastinal and pleural pathology

Congenital lung malformations

Parenchymal and airways disease of the lungs Bony and visceral trauma in children

Tumors: Tumors of the chest /chest wall/pleura/mediastinum/lung

**Pediatric Abdomen-**

Tumors of the abdomen and pelvis

Infections of abdomen, pelvis and musculoskeletal system Hemolytic and Vascular disorders in children.

Pediatric genitourinary system

Congenital malformations of kidney, bladder, genital tract, and pelvis Vesicoureteral reflux Hydronephrosis , Renal transplantation , Adnexal torsion , Acute scrotum ,Adrenal pathologies

Pediatric hepatobiliary system, pancreas and spleen: Parenchymal liver disease ,Congenital and acquired biliary tract disorders ,Liver transplantation ,Pancreatic disorders ,splenic lesions

Pediatric gastrointestinal tract: Congenital malformations, including malrotation and atresias

Hirschsprung disease ,Meconium ileus: diagnosis and treatment, Pyloric stenosis ,Intussusception diagnosis and treatment Appendicitis , NEC,Worms , Gastroesophageal reflux ,Bowel obstruction Swallowing disorders ,Placement of enteric feeding catheters

**Pediatric musculoskeletal system**:

Congenital bony dysplasia and Developmental dysplasia of Hip Metabolic bone disease

Osteochondroses Alignment disorders Bone marrow anomalies

Tumors of the musculoskeletal system Bone age Determination **Interventional Radiology-**

To assist interventional Radiologist and faculty members in doing various image guided vascular and nonvascular interventional procedures, Radiofrequency Ablation, Laser ablation etc. in pediatric patients.

**Competence and General Strategy of Learning-**

**-** Initially look at studies, provide a preliminary report and then review case material with the attending radiologist daily .

Generate and sign off an official report for those cases after staff review . Arrange and interpret emergency cases .

Prescribe protocols and interpret CT, MRI examinations;

Perform and interpret ultrasound, radiographic and fluoroscopic studies .

Identify appropriateness of examination requests and make decisions as to the most appropriate imaging test for each situation.

Act as a consultant and provide stat verbal reports for the clinicians .

Provide night and weekend on-call coverage for imaging cases, including preliminary reports for emergent body studies (radiographs, CTs, MRIs, ultrasounds, fluoroscopic studies) after hours with supervision of attending staff in a system of delegated and graded responsibility

For intussusception reduction, to obtain informed consent prior to the procedure, perform the procedure under the supervision of the attending radiologist and ensure proper patient care post procedure

Communication: Explain the procedure to the patient/family, including the risks and possible complications, and answering questions

Generate clear and concise reports in a timely fashion and provide verbal reports whenever necessary Review pediatric cases brought to attention by clinicians on a daily basis

Use appropriate history to guide decisions regarding the best imaging modality for a given clinical condition or issue

Communicate with imaging technologists and nurses to ensure optimal patient care

C.T.and M.R.I.- Screen and prescribe protocols for CT and MRI examinations in the pediatric context Prioritize studies.

Discuss about availability of resources and the role of triage

Recognize the proper steps in the imaging investigation of various pediatric pathologies

Become increasingly responsible for individual body imaging subsections, including the proper delegation of authority to residents and technologist

Guide referring clinicians to the imaging study or studies most appropriate for their patients . Recognize and advise on the benefits/risks of imaging procedures, including radiation exposure, in consultation with referring physicians.

**Take follow up of patient after treatment or Surgery from his doctor**.

-Learn the importance of recognizing imaging findings of non-accidental injury

**Academics**-

**1 Research**-Complete at least one original research project on pediatric imaging as principal author with the purpose of preparation of a manuscript suitable for publication in a peer-reviewed journal

1. **Present** academic work on pediatric imaging at local, national or international scientific meetings
2. **Learning**-Preparation of a formal yearly lecture on a pediatric radiology topic to be presented to the department and undergo formal assessment . keep Logbook with entry of daily record& take signature of course faculty. -5. Active participation in Journal club
3. **Teaching- of** diagnostic radiology residents as well as residents from other clinical services , U.G.medical students and trainee x-ray technician
4. **Maintenance of logbook:** logbook to be maintained for daily work assisted and done by you, as well as for your academic work and teaching in the department. Signature of faculty/faculites to be taken daily.

**TRAINING SCHEDULE:**

State-of-the-art equipment includes 64-slice CT, 1.5-T MRI, PET/CT, Gamma Imaging, digital radiography, US, Digital Mammography, Perfusion MRI , MR Spectroscopy.

#### The Fellow will have rotation in the following areas:

Xray ,Special Investigation 1 months

Ultrasound Doppler 3 months (1 month compulsory & 1 month optional; if not done, extra month added into other areas)

CT Scan 3 months

MRI Scan 4 months

PET CT 1 months

* 64 Slice CT : Three sessions per week
* 1.5T MRI : three sessions per week
* Ultrasound : two session per week
* Xray : Three session per week
* Nuclear Medicine (PET CT & GammaCT) : one sessions per week
* Flexible session for simple imaging-guided interventional procedures
* General cross section radiology (reporting / procedures) : three session per week
* Study / meetings : one session per week
* Research / audit : one session per week