



**INDIAN ACADEMY OF PEDIATRICS**  
**IAP CHAPTER OF NEURO DEVELOPMENTAL PEDIATRICS**

---

**IAP FELLOWSHIP IN DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS**

**Course Content and Academic Program 2020**

1. The Fellows will be trained in all aspects of Developmental and Behavioural Pediatrics, right from Basic Sciences to Recent Advances.
2. The following mentioned reading material will be made online:
  - a. Curriculum
  - b. Course Content
  - c. Guidelines for Examination and Academic Evaluation
  - d. Guidelines for Thesis Writing and Submission
  - e. E- Copy of the IAP National Consensus Guidelines for Evaluation and Management of Autism Spectrum Disorders
  - f. E- Copy of the IAP National Consensus Guidelines for Evaluation and Management ADHD
  - g. E- Copy of the IAP National Consensus Guidelines for Evaluation and Management Specific Learning Disabilities

- h. E- Copy of the IAP National Consensus Guidelines for Newborn Hearing Screening Protocol
- i. Manual of Poor Scholastic Performance Program
- j. Other Reading Material as decided by the Academic Committee and Board of Advisors of the Governing Council
- k. Names of Recommended Textbooks on Developmental & Behavioral Pediatrics

### **3. Recommended Textbooks and Reading Material**

- a) Book on Developmental Pediatrics – Dr MKC Nair 2016, 2017
- b) AAP Textbook of Developmental and Behavioral Pediatrics
  - a. Authors Robert G. Voight, Michelle M. Macias, Scott M. Myers
- c) Developmental-Behavioral Pediatrics
  - a. Authors William B. Carey MD (Author), Allen C. Crocker MD
- d) Introduction to Psychology by Morgan & King
- e) Developmental Psychology by Elizabeth Hurlock.
- f) The High Risk Newborn (Jaypee) 2008 MKC Nair
- g) Developmental Disorders Early detection & Intervention. MKC Nair, Paul Russel, 2019

h) Illingworth's Book of The Development of the Infant and the Young Child Normal and Abnormal. MKC Nair, Paul Russell, 2013.

i) Other Reading Material as decided by the Academic Committee and Board of Advisors of the Governing Council

4. **The fellow should be posted in NICU** for a period of one month to observe, practice and demonstrate newborn reflexes, primitive reflexes etc. The Fellow should also observe the occupational therapist carry out stimulation techniques for stimulating various senses such as touch, vision, hearing, etc. The Fellow should learn the Developmentally Right Care for the High Risk Newborn / Infants and the guidance and counselling technique for the parents.

5. **Theory Topics – The course will cover entire scope of Developmental and**

**Behavioral Pediatrics. Following Topics will be included:**

a) Introduction to Early Child Development

b) Principles, Stages And Theories Of Development

c) Brain Development – Evolution of Development

d) Neuronal Migration Disorders – Lissencephaly, Schizencephaly, Pachygyria,

Porencephaly

e) Meningomyelocele

f) Intracranial Calcifications

g) The Basics of Genes, Molecular Genetics & Heredity

h) Genetic Disorders – Single Gene Disorders

i) Chromosomal Disorders

j) Hypothyroidism

k) Microcephaly

l) Hydrocephaly

m) Neuro Metabolic Disorders

- Disorders of Amino Acids
- Disorders of Organic Acid Metabolism
- Disorders of Carbohydrates Metabolism
- Lysosomal Storage Disorders
- Disorders of Metal / Purine Metabolism

- Disorders of Pyrimidine Metabolism

n) Neuro Muscular Disorders

- Primary Disorders of Muscles – Muscular Dystrophy
- Myotonic Disorders
- Multiple Sclerosis
- Metabolic Myopathies
- Denervating Diseases
- Spinal Muscular Atrophy
- Hereditary Motor and Sensory Neuropathies
- Hereditary Sensory and Autonomic Neuropathy
- Early Onset Neuro Muscular Disorders – Infantile Botulism, Myasthenia Gravis, Congenital Myasthenia, Transient Neonatal Myasthenia
- Neurocutaneous Syndrome – Tuberous Sclerosis, Neurofibromatosis

o) Pre Natal Diagnosis

- Biochemical Markers During Pregnancy
- Intra Uterine Infections – STORCH Group
- Techniques of Pre Natal Diagnosis
- Maternal Serum Screening – Triple Test, MSAFP, UE3, Maternal Serum Beta HCG, Quadruple Test

- Maternal Screening During First Trimester – AFP, HCG, PAPP-A, Amniocentesis, Nuchal Translucency, Amniocentesis, Cordocentesis, Chronic Villus Sampling
- HIV Testing, Thyroid Function Tests, Anti Thyroid Antibodies, Urine Aminoacidogram
- Cytogenetics,
- Genetic Counseling,
- Prevention of Genetic Disorders
- Foetal Therapy – Foetal Sampling, Multi- Foetal Pregnancy Reduction, Foetal Blood Transfusion, Foetal Surgeries
- Foetal Stem Cell Transplantation

p) Normal/ Atypical Developmental Milestones

q) Cognitive Development in an Infant and Child

r) Development of Special Senses

s) Personality and Social Development; Emotional Development

t) Neonatal Encephalopathy, Developmental Delay and Need of Early

Detection

- Low Birth Weight Babies, Prematurity, IUGR – Perinatal Asphyxia, Kernicterus, Seizures etc – Causes, Determinants, Complications, Risks Involved.
- Maternal Stress and Pregnancy

u) Developmental Red Flags and Need of Early Detection

v) Seizures and Associated Disorders

- Neonatal Seizures, Causes, Complications and Management
- HIE, Hypoglycaemia, Hypocalcaemia
- Intra Cranial Haemorrhage
- Complex Partial Seizures, Myoclonic Seizures, Febrile Seizures, Partial Seizures, Infantile Spasms, Biotinidase Deficiency, Lennox Gastaut Syndrome
- Generalised Seizures, Pseudo-seizures, VGS (Video Game Induced Seizures) / TV Viewing Induced Seizures / Photosensitivity and Seizures
- Other Types of Seizures and their Management
- Status Epilepticus
- Importance of Ketogenic Diet
- Breath Holding Spells, Apnoea, Cyanotic Syncope

w) Psychological, Social and Emotional Development

x) Development and Stages of Play

y) Neuro Developmental Disorders – Early Identification, Screening, Clinical Features, Diagnosis, Assessments, Sensory Issues, Multi-Disciplinary, Inter-Disciplinary Interventions, Trans-Disciplinary Intervention and Rehabilitations, Educational Recommendations for the following neuro developmental disorders:

- Autism Spectrum Disorders,
- Cerebral Palsy, Neuro Motor Impairments
- Learning Disorder,
- Attention Deficit Hyperactive Disorder
- Hearing Impairment – Types of Hearing Loss, Various Aetiology, Clinical Audiological Evaluation, Remedial Interventions, Hearing Aids, Cochlear Implants etc; Newborn Hearing Screening Guidelines (IAP)
- Visual Impairment – Causes of Blindness, ROP, CVI, Visuo Motor Impairments, Visuo Perceptual Impairments, Preventive Measures
- Down's Syndrome
- Fragile Syndrome

z) Special Senses and Sensory Assessment

- Sensory Issues in Children, Impact of Sensory Issues on Social Skills, Learning, Academics, Behaviour and Activities of Daily Living
- Sensory Processing Disorder
- Sensory Integration Therapy

aa) Speech and Language Development and Disorders

- Theories, Components and Development of Speech and Language, Articulation, Modes of Communications,
- Speech Disorders
- Language Disorders
- Communication Disorders
- Apraxia of Speech in Childhood



- Aphasia, Dysarthria, Oro Facial Functional Disorders, Articulation and Phonological Disorders, Stuttering, Voice Disorders, Selective Mutism
- Semantic Pragmatic Disorders
- Speech, Language and Communication Disorders in Children with Cerebral Palsy and Learning Disabilities

bb) High Risk Newborn Follow up Protocol

cc) Newborn Hearing Screening Protocol

dd) Neuro Developmental Assessment, Screening, Protocols and Tools

ee) Nutrition in Children with Special Needs

ff) Behavior Disorders of Childhood and Adolescent Years

- Habit Disorder – Repetitive Disorder, Thumb Sucking, Abdominal Pain, Evening Colic, Pica, Nail Biting, Teeth Grinding, Breath Holding Spasms, Temper Tantrums, Tics, Stuttering, Stammering
- Conduct Disorder
- Emotional Disorder

gg) Childhood Psychiatric Disorders

- Anxiety Disorder, Depression in Children, Eating Disorder, Bipolar Disorder, Social Phobia, Panic Disorder, OCD, PTSD, Schizophrenia, Sleep Walking, Night Terrors,

hh) Sexuality in Children with Special Needs

ii) Organization of a Multi-Disciplinary Team & Functioning of an Inter Disciplinary Team

- jj) Early Identification and Early Stimulation Program
- kk) Neuro Developmental Therapy
- ll) Importance of a Physical, Social and Emotional Environment for a child with  
global developmental delay
- mm) Parental Counseling
- nn) Behavior Modification Techniques
- oo) Importance of Pre - School Education for Children with Developmental  
Delay
  - Special Education – Theories of Learning
  - Early Childhood Education
  - Theories of Learning
  - Factors that Affect Learning – Physiological Factors, Psychological  
Factors, Social Emotional Factors, Attention, Perception, Motivation,  
Intelligence, Slow Learners, Children with Intellectual Disability,  
Children with Borderline Intelligence,
  - Classroom Environment and Curriculum Designing for children with  
Neuro Developmental Disorders
- pp) Impact of Physical, Sexual and Emotional Abuse in children with special  
needs.
- qq) Any Other Topic suggested by the Head / Academic Body Governing  
Council / Course Coordinator from time to time

---

**Dr Samir Dalwai**  
**Chairperson Academic Committee, IAP Fellowship Governing Council**  
Past Chairperson, IAP Chapter of Neuro Developmental Pediatrics, 2013-2017

[samyrdalwai@gmail.com](mailto:samyrdalwai@gmail.com)

---

**GOVERNING COUNCIL TEAM IAP FELLOWSHIP IN DEVELOPMENTAL & BEHAVIORAL PEDIATRICS**

Dr SS Kamath – Chairperson Advisory Committee

Dr Abraham Paul – Chairperson Accreditation & Inspection Committee

Dr Jeeson Unni – Co Chairperson Accreditation & Inspection Committee

Dr Samir Dalwai – Chairperson Academic Committee

Dr Chhaya Prasad – National Coordinator, IAP Fellowship In Dev & Beh Pediatrics

**IAP CHAPTER OF NEURO DEVELOPMENTAL PEDIATRICS**

---