



# ***Course Curriculum***

## **Fellowship In**

## **Pediatric Ophthalmology and Strabismus**

***Prepared by:***

**Narayana Nethralaya,**

**Superspeciality Eye Hospital and Post Graduate Institute of Ophthalmology,**

**121/ C, Chord Road, Rajajinagar 'B' Block,**

**Bangalore 560 010, India**

***Guidelines & Affiliation:***

**Rajiv Gandhi University Of Health Sciences, Karnataka,**

**4<sup>th</sup> T Block, Jayanagar, Bangalore- 560041**

## **1) Name of the subject: Paediatric Ophthalmology and Strabismus**

## **2) Description:**

### **a) Goals**

The goal of the 12-months Pediatric Ophthalmology and Strabismus fellowship is:

- To expand knowledge, examination and therapeutic ability in all areas of strabismus in children and adults.
- To develop surgical and diagnostic skills necessary to treat both common and uncommon ophthalmologic problems that occurs in children.
- To be able to diagnose & treat amblyopia.
- To get an exposure to electrophysiology.
- To participate in clinical or basic science research projects.
- To be conversant with ophthalmologic issues that concern children in the community and gain experience in Pediatric community ophthalmology.
- To contribute to the expansion of services and research potential of the pediatric ophthalmology section in Narayana Nethralaya.
- To inculcate in the trainee a good sense of medical ethics & offer personal and professional development as a future academically oriented pediatric ophthalmologist.

### **b) Statement of the Objectives of the course**

#### **i) & ii) Knowledge and Skills**

The first 6 weeks of the fellowship constitute a probation period during which the fellows will learn basic examination techniques and relevant diagnostic procedures in ophthalmology through rotation with faculty members in various subspecialties (Cornea, glaucoma, Retina, Oculoplasty, Uveitis, Pediatric Ophthalmology & Strabismus) and also in paraclinical departments). In the next 7.5 months the fellow will work in the Glaucoma department. In the final 3 months of the program, subject to satisfactory performance, the fellow may see and treat cases independently as an adjunct faculty of the institute and work in the peripheral outreach centres of the institute.

## **Curriculum: Fellowship in Paediatric Ophthalmology and strabismus 3**

An exposure to usual & unusual eye diseases in children, with more emphasis on strabismus, amblyopia & pediatric cataracts will be provided. The trainee will be encouraged to take seminars, lectures & case & journal presentations. Knowledge of basic sciences & recent advances will be mandatory.

Skills in diagnostic, surgical & orthoptic evaluation of a patient will be taught.

The development of surgical knowledge and skills will be a major goal of the fellowship.

### **This will be achieved by:**

- Participation with the consultant in decisions on pediatric and adult strabismus surgeries.
- Observing and assisting the consultant, in strabismus, pediatric cataracts & other pediatric surgeries like ocular tumors, glaucoma, oculoplasty & lacrimal surgeries.
- Performing surgeries under the supervision of the consultant.
- Performing surgeries independently.

Children are not merely small adults. Examination of children requires a lot of patience & good communication skills. Tips for a productive examination & good patient/parent relationship will be offered.

### **iii) Communication abilities:**

The fellow must be able to probe the patient's history for relevant details of the onset and course of the ocular condition. Fellow will be taught about counselling and patient interaction

The fellow should be able to use all of these skills in order to diagnose and treat disorders relevant to the subspecialty.

### **Periodic sessions will be organised to train the fellows in the following:**

- Communication skills: oral and written
- Leadership skills: through participation in community work as the working head of the camps and screening programmes
- Use of technology for teaching and communication
  - Internet to access journals, emails and websites
  - Pubmed and Medline search for bio-medical literature
  - Training sessions on PowerPoint presentations, use of Microsoft excel for statistics and projections

**c) Course contents (Syllabus)**

**Syllabus**

**Essential knowledge**

- **Introduction:** Tips for a productive pediatric examination.
- Vision Testing in children
- **Strabismus**
- Anatomy of extra ocular muscles & their fascia
- Motor physiology
- Sensory physiology & Pathology
- Amblyopia
- Diagnostic techniques for strabismus & amblyopia
- Esodeviations
- Exodeviations
- Vertical deviations
- Pattern deviations
- Special forms of strabismus – Paralytic & restrictive.
- Childhood Nystagmus

**Pediatric Cataracts**

- Structural & positional lens abnormalities
- Congenital & developmental cataracts
- Traumatic cataracts
- Congenital anomalies of the globe
- Eyelid disorders – ptosis
- Infectious & allergic ocular diseases
- Developmental anomalies of the Lacrimal drainage system
- Cornea & anterior Segment anomalies
- Pediatric glaucomas
- Uveitis in pediatric age group
- Vitreous & Retinal disorders in children
- Ocular tumours in children
- Ocular trauma in pediatric age group

- Assessment of visual acuity in children
- Tests of ocular alignment
- Using RAF ruler
- Synoptophore for convergences exercises, macular stimulation, grade of binocularity & measurement of angle of deviation
- Tests for binocular sensory co operation
- Diplopia Charting
- Exposure to the basics of electrophysiological tests like ERG, EOG & VEP.

### **Procedural & Operative skills**

The candidate will be trained in all simple & complicated strabismus surgeries, pediatric cataracts, lid surgeries & probing & syringing.

**The development of surgical knowledge and skills will be a major goal of the fellowship. This will be achieved by:**

- Participation with the consultant in decisions on pediatric and adult strabismus surgeries.
- Observing and assisting the consultant, in strabismus, pediatric cataracts & other pediatric surgeries like ocular tumors, glaucoma, oculoplasty & lacrimal surgeries.
- Performing surgeries under the supervision of the consultant.
- Performing surgeries independently.

### **d) Teaching / Learning Activities**

- Departmental activities ( please see below section e)
- Practical clinical training of post graduates (DNB in ophthalmology): Fellows are expected to participate in the training of DNB candidates. This can involve activities such as discussion of cases in an informal way on a regular basis to formal presentations in weekly meetings.
- Training of paramedical and community health workers: Fellows may be requested by advanced notice to participate in training of paramedical personnel in the hospital or team members in community level. Hands on experience of conducting camps, communication and training of field workers is expected to provide excellent experience and learning for the fellows.

## **Curriculum: Fellowship in Paediatric Ophthalmology and strabismus 6**

- **Journal Access:** Our institution has access (both hard copies and online) to peer-reviewed, reputed journals. The fellows are guided by their faculty to regularly update their knowledge by reviewing latest articles from these journals.
- **Participation in state level and national level conferences, CMEs, seminars:** fellows are expected to present at least one paper/ poster during their tenure in a CME meeting outside of the institution.
- **Research Methodology Training:** Periodically (every 3-6 months) training will be organized to cover the following topics:
  - Research paper writing : basics
  - Basics of epidemiology and biostatistics
  - Regulatory issues in human research: Indian regulations and others
  - Good clinical Practice (GCP) training

### **e) Participation in Departmental Activities**

- (1) **Journal review meetings:** Will be held once in every 2 weeks. One of the presenters will (typically a fellow or a post-graduate) presents an interesting article from a recent journal. The validity of research methods, the findings, the applicability, and clinical implications of the findings will be critically reviewed and discussed. One of the faculty members moderates the entire proceedings and will summarize the discussion at the end of the session.
- (2) **Seminars:** Subject seminars will be held once a week. Topics of importance are covered. Either the fellow or a faculty will present a detailed account of a particular topic for ex.: a diseases or drug or new therapy etc. Interaction is strongly encouraged in such presentations.
- (3) **Clinico-pathological conferences:** Basic science faculty from Narayana Hrudayalaya will be invited to discuss challenging cases wherein a diagnosis was finally achieved through the laboratory help.
- (4) **Interdepartmental meetings:** These will be of great importance in better understanding of diseases which have involvement of different disease processes or involve multiple structures in the eye. Also some the patients may have associated systemic conditions and having a meeting with other specialists such as physicians, neurologists, endocrinologists may be of great importance.

## **Curriculum: Fellowship in Paediatric Ophthalmology and strabismus 7**

(5) **Community work- camps/ filed visits:** Fellows are expected to participate in community programs. We have regular weekly camps as well special camps organized from time to time.

(6) **Clinical case presentations:** Every week, interesting and important cases will be discussed. Learning by case study approach is a well established method of training and fellows will be strongly encouraged to discuss cases with the mentors on a regular basis.

(7) **Participation in conferences/ presentation of papers:** Narayana Nethralaya has a strong and growing research team. Fellow are strongly encouraged to work with faculty in producing good quality research and they are encouraged to present and publish such papers. One paper presentation or a journal article submission is required for course completion.

1. **Rotation and Posting in other departments** (duration and Learning requirements to be specified) Fellows will be rotated through other specialties in ophthalmology to allow for understanding of co-management, referral practice and academic challenges.

1.1. For the initial 6 weeks the fellows work in rotation with faculty members in the various subspecialties. 1 week each in :

- Cornea
- Glaucoma
- Retina including medical and surgical retina
- Orbit and oculoplasty,
- Uveitis

During this period the fellow would also visit, discuss and learn from interaction with the relevant para-clinical departments like microbiology and pathology.

### **Learning requirements during the subspecialty rotation**

- Examination and management of simple diseases
- Assisting and Performing common procedures and surgeries
- Learning Evaluation and timely referral of patients with more advanced diseases

### **3. Orientation Programme**

An orientation programme for a period of 1 week will be scheduled at the beginning of the fellowship program. The following components will be included in the orientation:

- General and Human resource related:
  - Hospital policies regarding patient care, employment, leave and all human resource related matters
  - Security, emergency, disaster management in the hospital
  - Employess benefits
- Patient care
  - Policies
  - Emergency management
  - Documentation
  - Surgery scheduling, OT procedures, preanesthetic evaluation
  - Policies for Referrals to other doctors and hospitals : internals, external
- Laboratory : Requests, communication, precaution for specimen handling, emergency handling of specimens
- Eye bank and Eye donation
- Library:
  - Rules regulations
  - Procedures for borrowing
  - Plan for materials not available inhouse
  - Online access , use of internet, use of pubmed and medline search
  - Access to password protected library e.x: RGHHS library (after the access becomes available to us)
- National Programmes for Prevention of blindness
  - NPCB
  - Other NGO and programmes



#### **4. Training in teaching skills and research methodology**

A half a day session will be organized every 3-6 months that will train all the post graduates and fellows in the following:

- Communication skills: oral and written
- Use of technology for teaching and communication
  - Internet to access journals, emails and websites
  - PowerPoint presentations, excel for statistics and projections
  - Pubmed and Medline search
- Research Methodology
  - Research paper writing : basics
  - Basics of epidemiology and biostatistics
  - Regulatory issues in human research: India regulations
  - Good clinical Practice (GCP) training

#### **f. Monitoring of Teaching and Learning Activities**

##### **Monitoring of Learning**

##### **Periodic evaluation of log book (end of every month):**

- Fellows are expected to document clinical and surgical work in a systematic manner in a logbook that is specifically designed for this purpose. Academic program participation should also be documented in the log book.
- Periodic Internal examinations: clinical assessment (end of every 3 months): Clinical assessment would be held at the end of every 3 months. This may include clinical case presentation, and clinical case quiz.
- Theory and Practical examination at the end of the course per RGUHS regulations. (section 10. Scheme of assessment: RGUHS notification, dated 22-09-2006, Ref: ACA/Fellowships/Rules-1/2006-07).

**Monitoring of operative skills:**

- Wet lab training under supervision and with video recording facility on animal or model eyes.
- Surgery performed under supervision: Fellows will perform surgeries under supervision till an appraisal is given by the faculty regarding the competence level to handle independent surgeries.
- Review video recorded surgeries with the trainees (once a month): Faculty members will review the approach, alternatives and potential ways of handling complications if any while reviewing an actual surgical procedure. Such learning experience can be supplemented by viewing additional videos of surgeries performed by the faculty.

**Monitoring of teaching and communications skills:**

- Grading and appraisal of post graduate teaching seminars: Faculty members will critically appraise a fellow of their performance during a seminar or case presentation that they may do for the post graduates.
- Encouraging presentation in conferences at state and national levels: Fellows will be encouraged and trained to present papers at conferences outside of the institution.

**Monitoring of research:**

Fellows are expected to complete at least one project work during the course duration which will result in one submission to a conference and or a journal

**Appraisal of faculty:**

Anonymous trainee appraisal of the faculty: Fellows will be requested to give a 360<sup>0</sup> evaluation of their faculty and appraise regarding them at the end of each posting. Such evaluation will be kept anonymous and confidential to avoid any conflicts or fear.

Faculty appraisal by fellowship monitoring committee: A monitoring committee from the institute will be set up to constantly monitor the progress of the programme, fellows well being and to facilitate an excellent learning and teaching environment.

### **1.2. Scheme of Examinations**

Examination and assessment will be conducted as per directions from RGUHS (section 10. Scheme of assessment: RGUHS notification, dated 22-09-2006, Ref: ACA/Fellowships/Rules-1/2006-07).

### **1.3. Recommended Books and Journals**

1. The Current American Academy of Ophthalmology Basic and Clinical Science Course (12 volumes)
2. Abrams D. Duke Elder's *Practice of Refraction*. Churchill Livingstone. This text covers the basic principles of refraction.
3. Duane's Clinical Ophthalmology By William Tasman, Edward A. Jaeger, Thomas David Duane 2005
4. Principles and Practice of Ophthalmology by Daniel Myron Albert, Frederick A. Jakobiec - 2000. *Principles and Practice of Ophthalmology*. W B Saunders.
5. Ophthalmology, 2nd Edition By Myron Yanoff, MD and Jay S. Duker, MD
6. Kanski JJ. *Clinical Ophthalmology*. Butterworth/Heinemann. Fifth Edition
7. The The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease (Paperback)
8. Von Noorden GK. *Binocular Vision and Ocular Motility*. Theory and Management of Strabismus. Mosby.
9. Kenneth Wright: *Paediatric Ophthalmology*.

#### **Paediatric speciality specific books:**

Paediatric Retina	Mary Elizabeth Hamet
Harley's Pediatric Ophthalmology - 4th Edition	Leonard B Nelson
Harley's Pediatric Ophthalmology - 5th Edition	Leonard B Nelson
Pediatric Ophthalmology - Requisites	Kenneth W Wright

### **1.4 Availability of the material related to the speciality-Ophthalmology:**

1. Text books : 300
2. Journals subscribed per year : 08
3. video Tapes : 50
4. Audio Tapes : 05
5. CD- ROMS : 05
6. Internet Facility : yes