



**Guidelines**  
**for**  
**Regional Institutes**  
**Of**  
**Ophthalmology**

## 1. **PREAMBLE**

National Programme for Control of Blindness (NPCB) was launched in the year 1976 as a 100% centrally sponsored programme with the goal of achieving a prevalence rate of 0.3% of population by 2020. The four pronged strategy of the programme is:

- strengthening eye care service delivery,
- developing human resources for eye care,
- promoting outreach activities and public awareness and
- developing institutional capacity.

1.2 With a view to provide medical care for eye diseases par excellence in a holistic manner, the Ministry of Health and Family Welfare envisaged to provide assistance for setting up of Regional Institute of Ophthalmology (RIO) in different parts of the Country. Till the end of the 8<sup>th</sup> Plan, 11 such RIOs were set up with the support provided by the Ministry of Health and Family Welfare under the National Programme for Control of Blindness. The number of such RIOs was increased to 16 during 10<sup>th</sup> Plan. The number of these RIOs has now been raised to 20 with inclusion of RIO Srinagar during 12<sup>th</sup> Five Year Plan. A list of RIOs is attached at **Annexure I**.

1.3 These Regional Institutes of Ophthalmology are considered to be the Centres of Excellence and play an important role in strengthening of Eye care services delivery by bringing in latest technology in the field and translating the innovations to high quality Eye Care. The RIOs also contribute by developing the human resources for Eye Care by providing training to the manpower like Ophthalmologists, Ophthalmic assistants, Refractionists, and other paramedical personnel. Summarily they should provide state of the art services in all spheres related to patient care, training and research.

1.4 The Ministry of Health and Family Welfare was providing financial support to these Institutes for procurement of new high end equipment and upgradation of their existing equipment to achieve the intended objectives and goals. This assistance has been raised from Rs. 60 lakh provided during 11<sup>th</sup> Plan to Rs. 1.00 crore for 15 RIOs and Rs. 3.00 crore for 5 best performing RIOs during the 12<sup>th</sup> Plan.

### **The Mission of a Regional Institutes of Ophthalmology (RIO)**

2.1 The Mission of a Regional Institutes of Ophthalmology (RIO) is to

- i. Provide medical care par excellence in a holistic manner paying due attention to facilitate the enhancement of preventive and promotive measures at primary and

secondary level and encouraging community participation in addition to focusing on tertiary level care services.

- ii. Develop outstanding teachers for supporting excellence of medical education and set highest standards of teaching at undergraduate and postgraduate level and reinvigorate the medical education process.
- iii. Bring together in one-place highly talented education and research faculties and make new strides in biomedical discovery.

### **3. Objectives of an RIO:**

3.1 The objectives of an RIO are

- (a) To evolve and demonstrate methods of rendering a highly competent ophthalmic service to the community through an integrated approach of promotive, preventive, curative and rehabilitative concept.
- (b) To provide facilities for training of Ophthalmologists, subspecialties, ancillary ophthalmic personnel like ophthalmic assistants and nurses. Emphasis should be laid on training of health personnel for rehabilitation of the blind and other para-ophthalmic staff like laboratory technicians, OT technicians, eye banking staff etc. need to be trained on a regular basis.
- (c) To stimulate research in Ophthalmology at its highest level in all areas of ophthalmology encompassing clinical sciences, epidemiology, surveys, basic sciences, laboratory and Allied sciences.
- (d) To act as referral Centre for ophthalmic healthcare providers such as PHCs, CHCs and other ophthalmic facilities providers.

### **4. Human Resource required at RIO**

Since these RIOs are envisaged to be centre of Excellence in the field of Ophthalmic health care, each RIO should have adequate number of Ophthalmologists and other Ophthalmologists trained in a particular sub-specialty (Sub-specialists) to provide quality eye care services in all the sub-specialties. They should also be responsible for imparting quality training and research activities in their specialty. The recommended manpower for these RIOs are given in **Annexure II**.

### **5. Infrastructure, Equipment and Facilities**

RIOs should have adequate facilities for general eye care services as well as for the specialty eye care services. The recommended infrastructure for these RIOs is given in **Annexure III**.

### **6. Training**

These RIOs have been envisaged as Centre of Excellence for providing various facilities in the field of ophthalmic sciences under one roof. The high skill in this regard is necessary for these Institutes to become model for others. Training plays an important role in this pursuit. The details of training activities for these RIOs are given in **Annexure IV**.

## **7. Research Activities**

The RIOs should be involved in regular research activities. Thesis/dissertation should be published in indexed journals on completion. The RIO should be involved in departmental projects as well as collaborative project. Epidemiological research including surveys should be an integral part of the research activities of any RIO. There should be a local Ethics Committee based on standard guidelines.

All faculty members should have regular publications in indexed national/ international journals and it should be included as major criteria for their promotion. Faculty members should participate in regional/national or international conferences.

## **8. Management Information System**

Computerization of all procedures like OPD Registration, Patient charges, OPD Diagnosis, OPD Forms, In-patient records, In-patient diagnosis, OT Surgical Procedure Registers ,Equipment status/Inventory etc.

All records should be analyzed (preferably automatic analysis using a standard software) to plan services and provide feedback to the hospital staff. All data should be recorded on a standard reporting format and shared at the state and national level on a regular basis through the Management Information System (MIS-NPCB). Linkage of all RIOs and sharing/ transfer of data amongst the RIOs should be encouraged.

## **9. Maintenance of the Equipment**

Since the high end equipment is provided to RIOs, it is necessary that they will be put to use immediately for the benefits of the patients with necessary skilled manpower. The recurring funds for manpower and maintenance of these equipment will be met from the Budget of RIOs provided to them by the State Government.

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**Regional Institute of Ophthalmology (NPCB)**

| S.No. | Institute                   | Contact Person  | Contact Details  | Email                        | Specialization  |
|-------|-----------------------------|---|--|------------------------------|---|
| 1     | R. P. Centre<br>(RIO Delhi) | Dr. Rajvardhan Azad<br>,Chief Dr. R. P.<br>Centre,All India<br>Institute of Medical<br>Sciences, Ansari<br>Nagar,<br>New Delhi - 110016.  | 26589695 – O/o<br>Chief<br>26593140,26593068<br>26593192<br>,26588919<br>(F) | ps.chiefrpc@rediffmail.com   | Retina  |
| 2     | RIO, Chennai                | Professor Dr. Raja<br>Rattanam<br>Director &<br>Superintendent<br>Regional Institute of<br>Ophthalmology,<br>Government<br>Ophthalmic Hospital,<br>R.L.Salai,<br>Egmore, Chennai,<br>Tamil Nadu | 044-28554406 -fax<br>-<br>044-28555281 ph.<br>0-9381051661                   | tnsbcs@rediffmail.com        | Cornea  |
| 3     | RIO Hyderabad               | Dr. Prem Prakash<br>Superintendent &<br>HOD of<br>Ophthalmology<br>Sarojini Devi Eye<br>Hospital & RIO<br>Hyderabad,<br>Humayun Nagar,<br>Hyderabad,<br>Andhra Pradesh                          | 040-23317274<br>040-23317276<br>0-9849903023<br>Fax : 040-23399611           | sarojinihospital@hotmail.com | General<br>Ophthalmology                                  |
| 4     | RIO Allahabad               | Dr. S.P.Singh<br>,Director & HOD,<br>State<br>Institute of<br>Ophthalmology,<br>Government<br>M.D. Eye Hospital,<br>Allahabad - 211003,<br>Uttar Pradesh  | 0532-2256666<br>0532-2600333<br>0532-2242549<br>9919903445                   | dr.spsingh999@rediffmail.com |   |
| 5     | RIO Ahmedabad               | Dr. Deepak Mehta<br>Director, M & J<br>Institute of<br>Ophthalmology &<br>RIO<br>Civil Hospital   | 079-22680360<br>079-22680314<br>22680360 (T/F)<br>22681010,                  | deepakmehta_in@rediff.com    | Occuloplasty,<br>contact lenses,<br>low vision<br>devices |

|    |                             |   |  |  |   |
|----|-----------------------------|---|--|--|---|
|    |                             | Campus,<br>AHMEDABAD - 16<br>(Gujarat).   | 22683721<br><br>(Ext. 1438)<br>Mobile No. 0-<br>9898044825 |  |   |
| 6  | RIO Kolkata                 | Prof. Gautam<br>Bhaduri<br><br>Director,<br>Regional Institute of<br>Ophthalmology<br>Medical College &<br>Hospital, Kolkata -<br>700073  | 033-22413853<br>22414901-6 (Extn. –<br>38)<br>0-9831021798 | riokolkata@yahoo.com   | General<br><br>Ophthalmology<br><br>& Medical<br><br>Retina |
| 7  | RIO Patna                   | Dr. Bibhuti Prasann<br>Sinha<br>Head Of Department<br>Indira Gandhi<br>Institute of Medical<br>Sciences<br>Regional Institute of<br>Ophthalmology,<br>Sheikpura, Patna -<br>800 001 | 0612-2297099<br>0612-2297631(Fax)<br><br>9470017777        | <a href="mailto:bibhuti13@rediffmail.com">bibhuti13@rediffmail.com</a><br><a href="mailto:bibhuti13@gmail.com">bibhuti13@gmail.com</a> | Glaucoma  |
| 8  | RIO UP Sitapur              | Dr. Madhu<br>Bhadhuria<br>Director & Med.<br>Supdt. Sitapur Eye<br>Hospital   | 05862-242884<br><br>9628627326                             | madhu@sitapureye-hospital.com<br><br>madhu.bhadauria@gmail.com   | Glaucoma  |
| 9  | RIO Bangalore,<br>Karnataka | Dr. Sri Prakash<br>Director Regional<br>Institute of<br>Ophthalmology<br>Bangalore – 560002<br>Karnataka  | 080-26707178<br><br>0-9845028125                           | sriprakashks@gmail.com   |   |
| 10 | RIO Guwahati                | Dr. P.K. Gosawami,<br>Director<br>Guwahati Medical<br>College<br>Guwahati-032<br>ASSAM  | 03612416031 (O)<br><br>0986407356                          | prasantag44@gmail.com  | Glaucoma,<br><br>Occuloplasty                               |
| 11 | RIO Bhopal                  | Dr. Reena Anand<br>Professor & Head of<br>Department of<br>Ophthalmology<br>Gandhi Medical<br>College<br>Bhopal, Madhya   | 0755-4050290<br><br>09827023974                            |  |   |

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|----|----------------|--|--|--|----------------------------|
|    |                | Pradesh  |  |  |                            |
| 12 | RIO Trivandrum | Dr. P. S. Grija Devi<br>Director<br>Regional Institute of<br>Ophthalmology<br>Government<br>Ophthalmic Hospital,<br>Thiruvananthapuram<br>Trivandrum, Kerala | 0471-2307749-<br>telefax<br>0471-2304046-ph.<br>0-9447256240 | riotvpm@gmail.com  | Cornea &<br>Medical Retina |
| 13 | RIO Raipur     | Dr. A. K.Chandraker<br>HOD(Ophth.), Pt.<br>Jawaharlal Nehru<br>Medical<br>College, Raipur,<br>Chattisgarh<br>(upgraded to the<br>status of RIO)              | 0771-2890142<br>9827159891                                   | drakchandraker@rediffmail.com  | Ant. Segment               |
| 14 | RIO Jaipur     | Dr. J.K. Chauhan<br>Head of the<br>Department<br>(Ophth.)<br>Deptt of<br>Ophthalmology<br>SMS Medical<br>College and<br>Hospital, Jaipur<br>Rajasthan        | 0141-2310288<br>0-9829093202                                 | <a href="mailto:lovyjpr@gmail.com">lovyjpr@gmail.com</a><br><a href="mailto:drjkc1958@gmail.com">drjkc1958@gmail.com</a> | Vitreo- Retina             |
| 15 | RIO Ranchi     | Prof. S.N.Chaudhary<br>H.O.D. (Ophth)<br>Deptt. of<br>Ophthalmology<br>Rajendra Institute of<br>Medical<br>Sciences<br>Ranchi, Jharkhand                     | 0651-2540074<br>0651-2540629 (Fax)<br>09430365544            | <a href="mailto:drsn.chaudhary@gmail.com">drsn.chaudhary@gmail.com</a>   | Ant. Segment               |
| 16 | RIO Cuttack    | Prof.Indrani Rath<br>H.O.D. (Ophth)<br>Deptt. of<br>Ophthalmology<br>Referral Eye<br>Hospital ,<br>SCB Medical<br>College<br>Cuttack, Orissa                 | 0671-2310782<br>0671-2416913<br>09437307955                  | dr.irath@gmail.com   | Neuro<br>Ophthalmology     |
| 17 | RIO, Rohtak    | Dr. A. K. Khurana<br>Director,<br>Regional Institute of  | 01262-211307<br>09896091449                                  | drkhurana8@gmail.com<br>director.pgims@hry.nic.in  | Glaucoma                   |

|    |             |  |   |  |              |
|----|-------------|--|---|--|--------------|
|    |             | Ophthalmology,<br>Rohtak   |   |  |              |
| 18 | RIO, Mumbai | Dr. T.P.Lahane,<br>Dean, Grants<br>Medical College<br>& Sir J.J.Group of<br>Hospitals,<br>Byculla, Mumbai                | 022-23750102<br>022-<br>2373555 Ext.2347<br>022-23735599<br>09867872555 | drtplahane@rediffmail.com  | Cataract     |
| 19 | RIO Punjab  | Dr. S.S. Shergil,<br>Director, RIO,<br>Amritsar, Punjab<br>Dr. Karamjeet Singh<br>Asstt. Prof.<br><br>Mr. Pramjeet Singh | 0183-2426506 (fax)<br>08699345464<br>09815980844<br><br>09814927996     | <a href="mailto:principalgmc@gmail.com">principalgmc@gmail.com</a><br><a href="mailto:rioamritsar@gmail.com">rioamritsar@gmail.com</a> | Ant. Segment |
| 20 | RIO J &K    | To be opened   |   |  |              |



**Manpower Recommended for RIOs**

**A. Ophthalmic subspecialties wise distribution of Ophthalmologists: 21**

- Cataract- 3
- Cornea, refractive surgery and eye bank- 3
- Vitreo-Retina& uvea 4
- Glaucoma- 2
- Oculoplasty- 2
- Pediatric Ophthalmology& Neuro ophthalmology- 2
- Low Vision and Optometry-1
- Preventive Ophthalmology and Rehabilitation-1
- Aneesthesia-2
- Radiology-1

**B. Other paramedical and supportive specialists: 4**

These facilities may be arranged in coordination with the main departments in the medical college. In case the RIO is not a part of the medical college then these department should be developed in the RIO.

Ocular Biochemistry-1

Ocular Pathology-1

Ocular Microbiology-1

Ocular Pharmacology-1

**C. Paramedical staff**

- Ophthalmic Technicians- 8
- Ophthalmic Nurses- 20
- O.T.Technicians - 6
- Hospital Attendants- 12
- Medical Social Workers- 2
- Eye Donation Cousellors- 3
- Data Entry Operator-8

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**2.1 Guidelines for general eye services at RIO:**

- OPD and Inpatient areas as per the standard guidelines.
- There should be a minimum of 80 beds for inpatient services
- There should be a provision of daycare facilities for cataract surgery & minor surgeries (20 beds).
- There should be a availability of adequate refraction services and Optical dispensing unit in the hospital
- A 24- hour functional emergency unit with Operation theatre facility should be available in the hospital premises.
- 24 hour Pharmacy
- A minimum of at least Eight Operating Tables should be available in the Operation theatres.

**2.1.1 General equipment required in Eye O.P.D**

- Examination chairs with slit lamps -6
- Refraction Units - 6
- Indirect Ophthalmoscope - 6 (20 D-6, 90 D-6 )
- Applanation Tonometers- 6
- Non contact tonometers -4
- Ophthalmoscopes-4
- Retinoscopes -4
- Autorefractometers -4

**2.2Specialty eye care services:**

**2.2.1. Cataract Services**

Suture-less cataract surgery- SICS& Phaco Surgery

- Ultrasound A Scan
- Ultrasound B Scan
- Keratometer
- Specular microscope
- Laser Interferometer
- IOL Master
- Phaco emulsification machine

**Equipment required for for cataract surgery**

### 2.2.2. Cornea and Refractive surgery Services:

| Equipment   | Services   |
|---|--|
| <ul style="list-style-type: none"> <li>• Pachymeter</li> <li>• Contrast sensitivity</li> <li>• Specular microscope</li> <li>• Glare acuity</li> <li>• Orbscan or Pentacam</li> <li>• Videokeratography</li> <li>• Facility for amniotic membrane harvesting and storage (Deep freezer at -80°C)</li> <li>• LASIK Laser</li> </ul> | <ul style="list-style-type: none"> <li>• Contact lens unit/ dispensing</li> <li>• LASIK Laser</li> <li>• Collagen cross linking</li> <li>• Phototherapeutic Keratectomy</li> <li>• Penetrating keratoplasty</li> <li>• Intra ocular refractive procedures like INTACS, ICL etc.</li> <li>• Lamellar corneal surgeries- like manual TK, DALK, DSEK</li> <li>• Keratoplasty set</li> <li>• Amniotic membrane grafting</li> </ul> |

### 2.2.3. Eye Bank and Corneal transplantation Centre.

All RIOs should have an Eye Bank and an Corneal transplantation centre. A minimum annual collection of 100 corneas per year to be collected and should have an annual target of 500 per RIO (including affiliated collection centers) should . **Hospital Cornea Retrieval Programme** should be an integral part of eye collection and should contribute to at least one third of the total collection.

### 2.2.4. Vitreo-retina& Uvea Services

#### Equipment required

- Indirect Ophthalmoscopes 6
- Fundus Camera 2
- Fundus fluorescein angiography (FFA) /ICG atleast 1
- Optical Coherence Tomography (OCT) 1
- Electroretinogram (ERG)-FF+MF 1
- Multifocal ERG (MfERG) 1
- Micro-perimetry 1
- Vitrectomy machines 2
- Endo laser 2
- Nd YAG laser for capsulotomy 1
- Red laser 1
- Laser Indirect Ophthalmoscopy 1
- Cryophotocoagulation 1
- Surgical sets required for Retinal Surgery

### 2.2.5. Glaucoma Services

## **Equipment**

- Gonioscope (Goldmann1 or 2 mirror)
- Non-contact tonometer
- Applanation tonometer in all slit lamps
- Pachymetry
- Perkins tonometer/Tonopen
- Standard Automated perimeter with normative database and progression analysis software
- Fundus camera

### **2.2.6. Pediatric Ophthalmology and Neuro-ophthalmology Services**

#### **Equipment**

- Indirect Ophthalmoscope
- Synaptophore
- Pediatric Refraction Set
- Red green goggles
- Hess or Lees chart
- Teller's / Cardiff Visual Acuity Cards
- Prism Bar
- Randot/ TNO test
- Maddox wing/ Maddox rod
- Electroretinogram (ERG)
- VER

### **2.2.7. Low Vision Services:**

#### **Equipment**

- 1) Indirect Ophthalmoscope
- 2) Low vision assessment kit
- 3) Low vision aids
  - Filter lenses that control glare
  - Telescopes /magnifiers/ Adaptive devices
  - Electronic Aids including CCTV

### 2.3. Community Ophthalmology Services

1. Provision of transport facilities for the patients to base hospital for surgeries.
2. Equipment and other logistics for conducting outreach comprehensive eye screening camp in the remote and underserved areas.
3. Facilities for conducting Community based research, surveys.
4. Tele-ophthalmology setup

Rehabilitation, mobility and orientation training and provision of community based rehabilitation- Involving agencies working for educational, vocational, social rehabilitation.**2.4 Other paramedical and supportive specialties**

#### 2.4.1. Ocular Microbiology Services

| Equipment  | Facilities   |
|--|--|
| <ul style="list-style-type: none"><li>• Microscope</li><li>• Incubator</li><li>• Centrifuge</li><li>• 4°C Refrigerator</li><li>• -20°C Refrigerator</li><li>• -80°C deep freezer</li><li>• Autoclave</li></ul> | <ul style="list-style-type: none"><li>• Bacterial detection/culture /sensitivity testing</li><li>• Fungal detection/culture /sensitivity testing</li></ul> |

#### 2.4.2. Ocular Biochemistry Services

| Equipment   | Facilities  |
|---|---|
| <ul style="list-style-type: none"><li>• Incubator</li><li>• Centrifuge</li><li>• refrigerator 4°C, 20°C &amp; Deep freezer -80°C</li><li>• Autoclave</li><li>• Autoanalyzer</li><li>• Spectrophotometer</li></ul> | <ul style="list-style-type: none"><li>• Biochemical tests on biological fluids.</li><li>• Micro-quantitative analysis of ocular fluids like aqueous, vitreous and tears</li></ul> |

### 2.4.3. Ocular Pharmacy Services

| Equipment  | Facilities  |
|--|---|
| <ul style="list-style-type: none"> <li>• Osmometer</li> <li>• Ph meter</li> <li>• Milli Q (distill water units)</li> <li>• Laminar Air flow hood</li> <li>• Sonicator</li> <li>• Homogenizer</li> <li>• Weighing Balance</li> <li>• Vertexer</li> <li>• Centrifuge</li> <li>• Sterile Room (for ophthalmic preparation )</li> <li>• Fridge (4°C, -80°C , -20°C )</li> <li>• Hot air oven</li> <li>• Incubator (374°C )</li> <li>• Animal surgical facility</li> <li>• Animal house (including animal cage &amp; water bottle)</li> <li>• Glassware (measuring cylinder, test table, washing bottle, solution container)</li> </ul> | <ul style="list-style-type: none"> <li>• Dispensing of essential ophthalmic eye drops</li> <li>• Animal experiments</li> <li>• Pharmaco-kinetic-pharmaco-dynamic studies</li> </ul> |

### 2.4.4. Ocular Pathology Services

| Equipment  | Facilities  |
|--|---|
| <ul style="list-style-type: none"> <li>• Blood cell counter</li> <li>• Microtome for section cutting</li> <li>• Tissue processing machine</li> <li>• Consumables for above tests.</li> </ul> | <ul style="list-style-type: none"> <li>• Complete haemogram including peripheral blood smear &amp; ESR</li> <li>• Bleeding time/Clotting Time</li> <li>• Urine analysis</li> <li>• Histopathology &amp; cyto-pathology</li> </ul> |

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### **3.1 Training Programmes**

**A. Post graduate degree in Ophthalmology: A ratio of 1:2(2 trainees for every faculty) is suggested.**

- MD/MS Ophthalmology;
- DOMS/Diploma in ophthalmology;
- DNB in Ophthalmology;
- Ph.D in Ophthalmology & related sciences.

#### **B. Sub specialty Fellowship**

- Phaco emulsification &SICS ;
- Cornea & Eye Bank;
- Glaucoma;
- Vitreo-retina;
- Neuro-ophthalmology,
- Oculoplasty,
- Pediatric Ophthalmology; Low vision & rehabilitation,
- Community Ophthalmology etc.

#### **C. Optometry**

- Optometry/ Ophthalmic Techniques Training (B.Sc.
- M.Optom./ M.Sc. in Optometry or equivalent degrees
- Low vision & rehabilitation,

### **3.2. Infrastructure for training**

- Lecture Hall
- Multimedia Projectors
- Wet Lab facility
- Internet Access
- High-tech Library with access to national and international journals

### **3.3. Training Activities**

Regular CMEs/Workshops

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