Curriculum

NBEMS Diploma

Ophthalmology

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I. OBJECTIVES OF THE PROGRAMME

1. Programme Goal

i. To produce competent specialist who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy.

ii. The purpose of this postgraduate training program is to impart appropriate expertise to create competent ophthalmic specialist having adequate current knowledge of the subject with sufficient diagnostic and surgical skills that are required to be practiced at the secondary levels of the health care delivery system.

iii. The competency-based training programme for Diploma in Ophthalmology aims to produce specialist in ophthalmology who having undergone the required training should be competent to handle all common ophthalmic problems and should be able to deal effectively with the eye care needs of the community.

iv. Ability to contribute in reducing blindness from our country by helping in implementation of National Programme for Control of Blindness and Visual Impairment.

2. Programme Specific Learning Objectives

A candidate upon successfully qualifying in the Diploma (Ophthalmology) examination should be able to:

i. Offer to the community, the current quality of 'standard of care' in ophthalmic diagnosis as well as therapeutics, medical or surgical, in most of the common situations encountered at the level of health services.

ii. Effectively communicate with patients or relatives so as to educate them sufficiently and give them the full benefit of informed consent to treatment and ensure compliance.

iii. Be aware of his/her own limitations to the application of the specialty in situations, which warrant referral to more qualified centers or individuals.

iv. Contribute as an individual/group towards the fulfillment of national objectives with regard to prevention of blindness.

v. Periodically self-assess his or her performance and keep abreast with ongoing advances in the field and apply the same in his/her practice.

vi. Acquire the basic skills of teaching nursing and paramedical professionals.

3. Competencies

Ophthalmic specialists are expected to have followed competencies which are advocated by Accreditation Council for Graduate Medical Education (ACGME):

i. Patient Care

a) Have adequate theoretical Knowledge of the subject to be able to give desirable standard of patient care
b) Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
c) Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families;
d) Gather essential and accurate information about patients;
e) Make informed decisions about diagnostic and therapeutic interventions, based on patient information and preferences, up-to-date scientific evidence, and clinical judgment;
f) Develop and carry out patient management plans;
g) Counsel and educate patients and their families;
h) Use information technology to support patient-care decisions and patient education;
i) Competently perform the medical and invasive procedures for treating eye diseases
j) Provide health care services aimed at preventing health problems or maintaining health.
k) Work with health care professionals, including those from other disciplines, to provide patient- focused care.
l) Be aware of his/her own limitations to the application of the speciality in situations which warrant referral to more qualified persons

ii. Medical Knowledge

a) Demonstrate knowledge about ophthalmic sciences and the apply this knowledge to patient care;
b) Demonstrate an investigatory and analytic thinking approach to clinical situations;
c) Know and apply the basic and clinically supportive sciences, which are appropriate to ophthalmology.

iii. Practice-based Learning and Improvement

a) Investigate and evaluate patient care practices; appraise and assimilate scientific evidence; and improve patient care practices;

b) Analyse practice experience and perform practice-based improvement activities using a systematic methodology;
c) Locate, appraise, and assimilate evidence from scientific studies related to patients 'health problems; and
d) Use information technology to manage information, access on-line medical information, support ongoing personal professional development.

iv. Communications Skills

a) Demonstrate communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates;
b) Create and sustain a therapeutic and ethically sound relationship with patients; Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills; and
c) Work effectively with others as a member or leader of a health care team or other professional group.

v. Professionalism

a) Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population;
b) Demonstrate respect, compassion, and integrity;
c) Demonstrate a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development;
d) Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent,
e) Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

vi. Systems-based Practice

a) Demonstrate an awareness of and responsiveness to the larger context and system of health care and effectively call on system resources to provide care that is of optimal value;
b) Advocate for high quality patient care and assist patients in dealing with systemic complexities;

c) Contribute as an individual/group towards the prevention of blindness.

d) Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance.

e) Professional attitudes and conduct require that ophthalmic specialists must also have developed a style of care, which is:

- Humane (compassion in providing bad news, management of the visually impaired,
- and recognition of the impact of visual impairment on the patient and society);
- Reflective (recognition of the limits of knowledge, skills and understanding);
- Ethical;
- Integrative (involvement in an interdisciplinary team for the eye care of children, the handicapped, the systemically ill, and the elderly)

Using all these competencies the resident at the end of two years of training should fulfil overall objectives of the training programme.

4. Overall Objectives

The clinical Postgraduate Diploma training program is intended to impart essential and clinical information (cognitive, affective and psychomotor) that are necessary for specialist in ophthalmology. A postgraduate should possess the following qualities, knowledge and skills:

i. Basic Sciences: Resident should possess basic knowledge of the structure, function and development of the human body as related to ophthalmology, and of the factors which may disturb these, the mechanisms of such disturbances, and the disorders of structure and function which may result.

ii. Clinical Knowledge: Resident should be able to practice and handle most day-to-day ophthalmic problems independently, should recognize the limitations of his clinical knowledge and know when to seek further help.

iii. Environment and Health: Resident should understand the effect of environment on health and be familiar with the epidemiology and common diseases in the field of ophthalmology. He/she should be able to integrate the preventive and promotive methods with the curative and rehabilitative measures in the comprehensive management of the disease.

iv. Community Ophthalmology: Resident should be familiar with common eye problems occurring in communities, especially in rural areas and be able to deal with them effectively. He /She should also be aware of National Program for

Control of Blindness and Visual Impairment and its working and components. The student should be able to organize and conduct survey in rural, urban and industrial communities and special group population.

v. Communication Skills: Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates. Residents are expected to: Create and sustain a therapeutic and ethically sound relationship with patients, use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skillsandWork effectively with others as a member or leader of a health-care team or other professional groups.

vi. Professionalism: Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population as laid down under professionalism in the preamble.

vii. Recent Advances: Resident should be familiar with the current developments in Ophthalmic Sciences.

viii. Teaching: Resident should be able to plan educational programs in ophthalmology in association with senior colleagues, and be familiar with modern methods of teaching.

ix. Medico-legal aspects: Resident should have basic knowledge of medico legal aspects of medicine. He/she should be familiar with patient counselling and proper consent taking.

II. TEACHING AND LEARNING ACTIVITIES

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skill oriented. Learning in postgraduate program should essentially be self-directed and primarily emanating from clinical and academic work. The formal sessions should merely be meant to supplement this. The departments may select a mix of the following sessions and award grade for each activity performed by resident.

1. **Methods for Theoretical learning and teaching:** Formal Teaching and Learning Activities:

i. Basic science course

ii. Seminars

iii. Tutorials / Group discussion

iv. Guest speakers on core specialty topics

2. Methods for Clinical Training: The residents can be imparted clinical training in several ways including

i. Work-Based Learning (WBL), such as:
   a) Daily round-based learning
   b) Clinic-based learning
   c) Emergency / On-call-based learning

ii. Practice-Based Learning, such as:
   a) Case presentation
   b) Grand round
   c) Inter departmental case or seminar
   d) Surgical Skills in Operation Theatre: Observe/Assist / Perform
      - Recent Advances
      - Participation in CMEs and Workshops

3. Theoretical teaching:

The theoretical knowledge is imparted to the candidate through distinct courses of lecture demonstrations, seminars and inter- and intra- departmental meetings. The students are exposed to recent advances through participation in CMEs. Teaching and learning are designed for delivery through various methods by mixing formal didactic lectures and self-learning processes through a structured and programmatic core education program. Knowledge in applied, basic and para-clinical and clinical sciences may be imparted by the members of the staff in respective disciplines or by clinicians themselves by conducting didactic courses (lectures and demonstrations).

4. Seminar:

Seminars should be conducted at least once weekly so as to cover as wide a range of topics as possible. The duration should be at least one hour. The relevant topics should be repeated every year. Seminars could be individual presentations or a continuum (large topic) with many residents participating.

5. Tutorials / Group Discussion:

The junior residents may present some topics to their senior postgraduates and amongst themselves where it is fully discussed before finally being discussed with senior eye specialists. A free and fair discussion is encouraged. These discussions enable the residents to enhance learning.

6. Clinical Training:

Relevance of beds and admissions in Ophthalmology has really gone down at present, as most of the surgical and special investigative procedures are being performed on out-patient basis. Most of the teaching has to be imparted in out-patient's department and Operation theatre using Work-Based Learning (WBL) and Practice-Based Learning.

7. Case discussion:

i. Bedside discussion on the rounds and outpatient teaching takes their toll with patient management. Therefore, in addition to these, clinical case discussions should form part of training schedule at a fixed time every week. This could range from 1-2 hours and could be held at least once or twice a week. The choice and manner of presentation and discussion varies widely and is left to the discretion of the department. Every effort should be made to include as wide a variety of cases as possible over two years with multiple repetitions. Problem oriented approach is better as it aids in decision making skills. In addition to bedside teaching rounds, at least 2 hour of formal teaching per week are necessary.

ii. Case discussions on the patient's records written by the student is to be encouraged as it helps exercise the student's diagnostic and decision-making skills. It also helps the consultant in critical evaluation of the student's progress academically.

iii. Case presentation at other in-hospital multidisciplinary forums. Consultant case presentation is another approach which should be encouraged as it aids in solving complex problems and also is forum for discussion of interesting cases.

8. Out-Patients / Clinics:

For the first six months of the training programme residents may be attached to a faculty member to be able to pick up methods of history taking and ocular examination in ophthalmic practice. During this period the resident may also be oriented to the common ophthalmic problems. After 6 months, the clinical resident may work independently, where he receives new and old cases including refractions and prescribes for them. The residents are attached to a senior resident and faculty member whom they can consult in case of difficulty.

9. Wards / Indoor:

Each resident may be allotted beds in the in-patient section depending upon the total bed capacity and the number of the postgraduates. The whole concept is to provide the resident increasing opportunity to work with increasing

responsibility according to seniority. A detailed history and case record is to be maintained by the resident.

10. Surgical Training in Operation Theatre: To provide surgical training, a phased program with graded responsibility may be undertaken.

i. In the first phase the student is given training in wet lab. He is also exposed to regional anesthetic block, preparations of cases for operation, and premedication.

ii. In the second phase, the student shall assist the operating surgeon during the operation.

iii. In the third phase, the student operates independently assisted by senior surgeon.

11. Professional Development and Record Keeping:

i. Participation in accredited scientific meetings (CME, Symposia, and Conferences).: Trainee should have attended two conferences/CMEs/Workshops during his /her tenure.

ii. Maintenance of log book: Log books shall be maintained and must be submitted periodically, checked and assessed periodically for continuous monitoring by the specialist mentor.

III. SYLLABUS

1. Basic medical science:

i. Orbital and ocular anatomy – Gross, Histology, Embryology

ii. Ocular Physiology

iii. Ocular Biochemistry-Biochemistry applicable to ocular function

iv. Ocular Microbiology-Specific microbiology applicable to the eye

v. Ocular Pathology

vi. Ocular Pharmacology

a) Attain understanding of the structure and function of the eye and its parts in health and disease including Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology etc. and its relevance to ophthalmology.

b) Attain understanding and application of knowledge of CNS and other systems of body which influence or control the structure and function of the eye.

c) Attain understanding of, and develop competence in, executing common general laboratory procedures employed in diagnosis of ocular disorders.

2. Optics & Refraction:

i. Basic physics of optics
ii. Applied ophthalmic optics
iii. Applied optics including optical devices
iv. Disorders of Refraction
v. Acquire competence in assessment of refractive errors and prescription of glasses for all types of refraction problems.
vi. Acquire basic knowledge of manufacture and fitting of glasses and competence in judging the accuracy and defects of the dispensed glasses.

3. Clinical Ophthalmology

The student will be given adequate opportunity to work, on the basis of graded responsibilities, in outpatients, in patient, and operation theatre (on a rotational basis). Thus, from the day of entry to the completion of the training program, the student shall be able to:

i. Acquire scientific and rational approach to the diagnosis of ophthalmic cases.
ii. Acquire understanding of, and develop inquisitiveness to investigate, cause and effect of diseases.
iii. To understand the principles, perform observe all routine ophthalmic investigations for example, Slit lamp examination Gonioscopy, Tonometry, Perimetry, Dark room procedures – Direct & Indirect Ophthalmoscopy, Keratometry, A-scan Biometry etc.
iv. Manage and treat all types of ophthalmic cases resulting from
    a) Disorders of the Orbit
    b) Disorders of the lids
    c) Disorders of the lacrimal system
    d) Disorders of the Conjunctiva
    e) Disorders of the Sclera
    f) Disorders of the Cornea
    g) Disorders of the Uveal Tract
    h) Disorders of the Lens
    i) Disorders of the Retina & Vitreous
    j) Disorders of the Optic Nerve & Visual Pathway
    k) Glaucoma
    l) Strabismus & Amblyopia
    m) Intraocular Tumours
    n) Neuro ophthalmology
    o) Pediatric ophthalmology

p) Ocular involvement in Trauma
q) Ocular involvement in systemic disease

v. Ophthalmic pathological/microbiological/biochemical sciences: The student should be able to interpret the relevant pathological / microbiological / biochemical data, and correlate with clinical data.

vi. Imaging Techniques in Ophthalmology: The student should be able to interpret the relevant X-Rays, Ocular USG A-Scan & B-Scan, CT scan etc.

Note: The desired scope of various aspects in the course content has been outlined in Annexure-1 (including basic and standard level goals) as recommended on National Curriculum for ophthalmology residency training).

4. Medical and Surgical Management of Ophthalmic Disorders:

i. To demonstrate the knowledge of the pharmacology (including toxic) aspects of drugs used in ophthalmic practice and of drugs commonly used in general diseases affecting the eyes.

ii. To exhibit competence in medical management of ophthalmic cases.

iii. To competently handle and execute safely common surgical procedures on Lens, lid, sac, adnexa and ocular surface including conjunctiva, cornea, sclera etc.

iv. Be familiar with micro-surgery and special surgical techniques

v. To competently handle all ophthalmic medical and surgical emergencies.

5. Community Ophthalmology:

i. National Program for Control of Blindness and Visual Impairment

ii. Eye Donation and Eye Banking

iii. Ethical and Medico legal aspects relevant to the discipline

iv. Postgraduate students may be able to assist or carry out eye camps; community and school surveys.

6. Teaching Methodology: To acquire the basic skills of teaching Nursing and Paramedical professionals.

IV. SUBJECT SPECIFIC COMPETENCIES

At the end of the course the student should be able to acquire the following competencies under the three domains:

1. Cognitive domain (Knowledge domain)

No limit can be fixed and no fixed number of topics can be prescribed as course contents. The student is expected to know his subject in depth; however, emphasis should be on the diseases/health problems most prevalent in that area. Knowledge of recent advances and basic sciences as applicable to his/her specialty should get high priority.

2. Psychomotor domain (Practice Based or Practical Competencies)

The following practical skills shall be acquired:

i. Essential diagnostic skills: Examination techniques along with interpretation

a) Slit lamp Examination
b) Diffuse examination
c) Focal examination
d) Retroillumination – direct and indirect
e) Sclerotic scatter
f) Specular reflection
g) Staining modalities and interpretation
h) Corneal Diagram with color coding

ii. Fundus evaluation

a) Direct/Indirect ophthalmoscopy
b) Fundus drawing
c) 3-mirror examination of the fundus
d) 78-D/90-D/60-D examination
e) Amsler's charting

3. Basic investigations along with their interpretation

i. Tonometry -Applanation /Indentation /Non-contact
ii. Gonioscopy- Grading of the anterior chamber angle
iii. Tear/ Lacrimal function tests Staining- fluorescein and Rose Bengal Schirmer test/tear film break up time Syringing Dacrocystography
iv. Corneal
    a) Corneal scraping and cauterization
    b) Smear preparation and interpretation (Gram's stain /KOH)

c) Media inoculation
d) Keratometry - performance and interpretation
e) Pachymetry
f) Corneal topography - if available

v. Colour Vision evaluation
a) Ishihara pseudoisochromatic plates
b) Eldridge Green Lantern, if available

vi. Refraction
a) Retinoscopy- Streak/ Priestley Smith
b) Use of Jackson's cross-cylinder
c) Subjective and objective refraction
d) Prescription of glasses

vii. Diagnosis and assessment of Squint
a) Ocular position and motility examination
b) Lees screen usage
c) Diplopia charting
d) Assessment of strabismus - cover tests/prisms bars
e) Amblyopia diagnosis and treatment
f) Assessment of convergence, accommodation, stereopsis, suppression
g) Synoptophore usage if available

viii. Exophthalmometry: Usage of Hertel's exophthalmometer - proptosis measurement

ix. Contact lenses
a) Fitting and assessment of RGP and soft lenses
b) Subjective verification of over refraction
c) Complications arising of contact lens use
d) Educating the patient regarding CL usage and imparting relevant knowledge of the complications arising thereon

x. Low Vision Aids
a) Knowledge of basic optical devices available and relative advantages and disadvantages of each.
b) The basics of fitting with knowledge of availability & cost

4. Special Investigations: The resident must be well versed with the following special investigations modalities although he may or may not perform it himself but should be able to interpret the following tests:

i. Fundus photography
ii. Fluorescein angiography (FFA)
iii. Ophthalmic ultrasound USG A-scan/B scan
iv. Automated perimetry for glaucoma and neurological lesions

v. Radiological tests - X rays, Antero posterior, Lateral view, Water's view, Optic canal view, Localisation of intra-ocular and intra orbital FBs, Interpretations of - CT/ MRI Scans

vi. Optical Coherence Tomography (OCT) and UBM

vii. Corneal Topography

5. Surgical Skills:

The resident shall be provided with an opportunity to perform operations, both extra-ocular and intra-ocular, with the assistance of the and / or under the direct supervision of a Senior Surgeon. Resident shall be provided with an opportunity to learn special and complicated operations by assisting the Senior Surgeon, in these operations. Resident shall be responsible for the postoperative care of these cases. It is desirable that the student be able to perform independently/under guidance various surgeries; the thrust areas include cataract, lacrimal sac, entropion and enucleation / evisceration. The resident surgery should be evaluated by available tools like OSCAR, CEX to provide surgical training, a phased program with graded responsibility may be undertaken:

i. In the first phase the student is given training in wet lab. He is also exposed to regional anesthetic block, preparations of cases for operation, and premedication.

ii. In the second phase, the student shall assist the operating surgeon during the operation.

iii. In the third phase, the student operates independently assisted by senior surgeon.

5.1 The student must know and be able to perform independently:

i. Minor surgical procedures:

a) Conjunctival and corneal foreign body removal on the slit lamp
b) Suture removal- skin / conjunctival/ corneal / corneoscleral
c) Epilation, electroepilation
d) Syringing and probing
e) Subconjunctival injection
f) Chalazion incision and curettage
g) Tarsorrhaphy
h) Biopsy of small lid tumors
i) Artificial eye fitting
j) Acute management of acid and alkali burns.

ii. Ocular Anesthesia: The student must know and be able to perform independently Ocular Anesthesia

a) Peribulbar / Retrobulbar / Subtenon / Topical /Intra-cameral use of Anesthetics
b) Facial nerve blocks- O'Brien / Atkinson/ Van lint & modifications
c) Frontal nerve blocks
d) Infra orbital nerve blocks
e) Blocks for sac surgery

5.2 The student must be able to perform independently / under supervision / assist and deal with complications arising from the following Ocular surgeries:

i. Lid Surgery

a) Ectropion & entropion (simple procedures)
b) Lid repair following trauma – including lid margin tears

ii. Destructive procedures

a) Evisceration with or without implant
b) Enucleation with or without implant
c) Enucleation for eye donation
d) Cyclocryotherapy

iii. Sac surgery

a) Dacryocystectomy / Dacryocystorhinostomy
b) Probing for congenital obstruction of nasolacrimal duct Strabismus surgery

iv. Ocular surface procedures

a) Pterygium excision with modifications
b) Conjunctival cyst excision
c) Conjunctival flap/peritomy
d) Repair of corneal / corneo – scleral perforations

5.3 The student shall be well conversant with use of Operating microscope and must be able to perform the following surgeries competently using the microscope:

i. Cataract surgery

a) Standard ECCE with IOL implantation
b) Small incision Cataract surgery with IOL implantation

ii. Vitreous Surgery

a) Intra-vitreal and intra-cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.
b) The student should know the basis of anterior vitrectomy in the management of cataract surgery complications.

5.4 The student should have preferably assisted in the following microscopic Surgeries

i. Cataract surgery: Phacoemulsification
ii. Glaucoma surgery: Trabeculectomy
iii. Keratoplasty
   a) Therapeutic and optical
   b) Application of glue and bandage CL
iv. Desirable to have assisted/ have knowledge of the following Laser procedures:
   a) YagCapsulotomy
   b) Laser iridotomy
   c) Focal and panretinal photocoagulation
   d) Kerato-refractive procedure

It is essential that by the completion of the training resident should have independently performed / performed with assistance at least 25 Cataract surgeries with IOL Implantation and 15 Extra ocular surgeries including

- Eyelid surgeries (Entropion / Ectropion / Eyelid repair),
- Lacrimal sac surgeries (DCT / DCR / Syringing & Probing)
- Eye retrieval procedures (Enucleation)
- Ocular surface procedures (Pterygium, Repair of corneo scleral perforations, Conjunctival flap/peritomy, Corneal suture, FB removal, Glue and bandage CL)

5.5 Affective domain (Attitudes including Communication and Professionalism) Basic Sciences: Instruct patients about eye diseases using model of an eye **

i. Optics, Refraction and Contact Lens

a) Instruct patients regarding uses, advantages, and care of spectacles**
b) Instruct patients regarding safe CL insertion and removal, CL wearing schedule, lens care regimens, CL disinfection care, indications contraindications**
c) Instruct patients regarding costs, types, advantages and disadvantages of IOLs**

ii. Cataract and Lens - General Educational Objectives

a) Develop and exercise clinical and ethical decision making in cataract patients**
b) Develop good patient communication techniques regarding cataract surgery**
c) Work effectively as a member of the medical care team**
d) Develop teaching skills about cataract for instructing junior trainees and students**
e) Instruct patients about post-operative care after cataract surgery. **

iii. Cornea and External Diseases

a) Counselling for eye donation and donor cornea harvesting**
b) Good patient communication techniques regarding penetrating keratoplasty *

iv. Neuro-Ophthalmology: Breaking bad news (Intracranial tumors) **

v. Glaucoma

a) Counsel patient and relatives regarding glaucoma screening and medication
b) Consent for Trabeculectomy **

vi. Ophthalmic Pathology: Good patient communication techniques regarding diagnostic procedures

vii. Vitreoretinal Diseases

a) Communicate about blindness due to specific retinal diseases
b) Provide patient with all relevant information about proposed investigative procedures for Retinal disease like FFA, OCT including risks and complications

viii. Uveitis and Ocular Inflammation

a) Provide patient with all relevant information about proposed ancillary testing procedures for uveitis, including risks and complications.
b) Counsel about side effects of immunosuppressive therapy.
c) Provide patient with relevant information about possible side effects of medications and proper monitoring of medications.

ix. Ocular Oncology

a) Discuss prognosis and various management options with patients and their families in a detailed, ethical, and compassionate manner**
b) Genetic counseling of parents of a child with retinoblastoma**
c) Use information technology and other aids to cope with lack of expert knowledge**
d) Assist patients with selecting the most appropriate management in collaboration, if necessary, with a subspecialist in ocular oncology.

x. Low Vision

a) Demonstrate low vision devices and educate low vision patients on the uses and limitations of these devices**
b) Educate patients on use of low vision equipment**

xi. Ethics and Professionalism in Ophthalmology

a) Confidentiality of health information
b) Professional competence and maintenance of competence
c) Informed consent

xii. Refractive Surgery: Counsel a patient for refractive surgery

xiii. Community Ophthalmology: Develop an activities plan for a one-year operational plan for a blindness prevention program for health district

Note: ** denotes the must know skills and has been adapted from the International Council of Ophthalmology Curriculum for Residents

V. PROCEDURES

PROCEDURE	SURGERIES	Can Perform Independently	Under supervision with assistance	Under supervision without assistance	Cannot Perform
Minor surgical procedures	Conjunctival and corneal foreign body removal on the slit lamp	✓			

	Pterygium excision with recent techniques		✓		
	Suture removal- skin / conjunctival/ corneal / corneoscleral	✓			
	Subconjunctival injection		✓		
	Posterior Sub-Tenon's injections		✓		
	Repair of corneal / corneo – scleral perforations		✓		
	Chalazion incision and curettage	✓			
	Biopsy of small lid tumors		✓		
Ocular Anesthesia	Peribulbar / Retrobulbar anesthesia	✓			
	Facial nerve blocks- O'Brien / Atkinson/ Van lint & modifications	✓			
	Frontal nerve blocks	✓			
	Infra orbital nerve blocks	✓			
	Blocks for sac surgery	✓			
	Ocular Anesthesia	✓			
	Peribulbar / Retrobulbar anesthesia	✓			

Lid	Tarsorrhaphy		✓		
	Ectropion&entropion (simple procedures)		✓		
	Lid repair following trauma – including lid margin tears				✓
	Epilation, Electroepilation	✓			
Lacrimal Apparatus	Dacryocystectomy	✓			
	Dacryocystorhinostomy		✓		
	Probing for congenital obstruction of nasolacrimal duct		✓		
Lens	Cataract surgery				
	Standard ECCE with IOL implantation	✓			
	Small incision Cataract surgery with IOL implantation	✓			
	Secondary AC or PC IOL implantation	✓			
	Phacoemulsification				✓
Glaucoma	Trabeculectomy				✓
	Pharmacological modulation of Trabeculectomy				✓
	Iridectomy				✓
Cornea	Therapeutic Keratoplasty				✓

	Optical Keratoplasty				✓
	Kerato-refractive procedures				✓
Retina	Intra-vitreal and intra-cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.		✓		
Destructive procedures	Evisceration with or without implant		✓		
	Enucleation with or without implant		✓		
	Enucleation for eye donation	✓			
	Cyclocryotherapy	✓			
Strabismus surgery	Recession and resection procedures on the horizontal recti				✓
Laser Procedures	YagCapsulotomy		✓		
	Laser Iridotomy		✓		
	Focal and Panretinal Photocoagulation		✓		

VI. LOG BOOK

The candidate will maintain the record of all academic activities undertaken by him/her in log book. The log book should show date wise evidence that the before mentioned subjects were covered. Apart from personal profile of the candidate, educational qualification/Professional data logbook should contain

- Record of case histories
- Procedures learnt

- Record of case Demonstration/Presentations
- Record of operations (assisted / performed) during the training period, certified by the concerned senior consultant / Head of the department.
- Record of participation/ attendance in CME. Workshop and Conference

The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student.

1. Personal attributes

i. Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situation shows positive approach.

ii. Motivation and Initiative: Takes on responsibility, innovative enterprising, does not shirk duties or leave any work pending.

iii. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.

iv. Interpersonal Skills and Leadership Quality: Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

i. Availability: Punctual, available continuously on duty, responds promptly on calls and take proper permission for leave.

ii. Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, and does not sit idle, competent in clinical case work up and management.

iii. Academic ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.

3. Clinical Performance:

i. Preparing documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management)

ii. Skill of performing bed side procedures and handling emergencies.

4. Academic Activity:

i. Performance during presentation at Seminar and other academic sessions.

ii. Proficiency in clinical presentations and discussion during rounds and OPD work up

iii. Proficiency in skills as mentioned in job responsibilities.

Marks for personal attributes and clinical work should be given annually by all the consultants under whom the resident was posted during the year. Average of the two years should be put as the final marks out of 25. Marks for clinical Performance academic activity should be given by the all consultants who have attended the session presented by the student. The Internal assessment should be recorded in Log book.

Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.

This log book shall be made available to the board of examiners for their perusal at the time of the final examination. In the absence of production of log book, the result will not be declared.

VII. RECOMMENDED TEXT BOOKS & JOURNALS

TEXT BOOKS

i. Albert DM. Ophthalmic Surgery: Principles and Techniques. Blackwell Science.
ii. Albert DM, Jakobiec. Principles and Practice of Ophthalmology. W B Saunders
iii. Principles & Practice of Ophthalmology Gholam a Paymen
iv. The Current American Academy of Ophthalmology Basic and Clinical Science Course (13volumes) supplemented by reading selected references ostensibly covers the curriculum, including the basic sciences.
v. Abrams D. Duke Elder's Practice of Refraction. Churchill Livingstone.
vi. Text book of Ophthalmology Yanoff and Duker
vii. Stephen J Ryan: Retina
viii. Sandra Byrne and Ronald Green: Ophthalmic Ultrasound
ix. Krachmer JH, Mannis MJ, Holland EJ. Cornea: Fundamentals, Diagnosis, and Management 3 ed. Mosby Elsevier, 2011.
x. Yanoff N, Duker JS. Ophthalmology 3 ed. Mosby Elsevier, 2009
xi. Friedman NJ, Kaiser PK, Trattler WB. Review of Ophthalmology. Elseview Saunders 2005, Philadelphia.
xii. Vajpayee RB. Corneal Transplantation 2nd edition. Jaypee Brothers Medical Publishers India (P) Ltd, New Delhi.

xiii. Coster D. Cornea (Fundamentals of Clinical Ophthalmology Series). Blackwell i. Publishing Limited.
xiv. Gasson A, Morris A J. The Contact Lens Manual. A practical guide to fitting. 4th ed. i. Butterworth Heinemann Elsevier, 2010.
xv. Steinert's cataract surgery 2nd Ed
xvi. Shields Text book of glaucoma
xvii. Smith and Nozik: Uvea
xviii. Rootman's diseases of the orbit
xix. Shields JA, Shields CL. Eyelid, conjunctival and orbital tumors. An atlas and textbook.
xx. Second ed. Philadelphia: Lippincott Williams & Wilkins; 2008.
xxi. Shields JA, Shields CL. Intraocular tumors. An atlas and textbook. Second Edition ed.
xxii. Taylor and Hoyt: Pediatric Ophthalmology. Saunders Ltd. 2004.
xxiii. Pratt-Johnson and Tilson: Management of Strabismus and Amblyopia. Thieme Verlag.
xxiv. Wright, Spiegel and Thompson: Handbook of Pediatric Eye and Systemic disease.
xxv. Von Noorden GK. BinocularVision and Ocular Motility. Theory and Management of Strabismus. Mosby.
xxvi. Helveston: Surgical Management of Strabismus.
xxvii. Von Noorden and Helveston: Strabismus: A Decision Making Approach.
xxviii. Char DR. Thyroid Eye Diseas., Williams and Wilkins, Baltimore, 1985
xxix. Collin JRO (ed). A Manual of Systematic Eyelid Surgery. Churchill Livingstone, Edinburgh, 1983
xxx. Agarwal A, Agarwal A, Jacob Soosan. Refractive Surgery 2nd edition. Jaypee, 2009.
xxxi. Gimbel HV, Penno EEA. LASIK Complications, Prevention and management 2nd edition. Slack Inc., 2001.
xxxii. Alio JL, Azar DT. Management of Complications of Refractive Surgery. Springer, Holladay JT. Quality of Vision: Essential Optics for the Cataract and Refractive Surgeon. Slack Inc., 2006.
xxxiii. Ocular Pharmacology: Havener
xxxiv. Anatomy: Wolff 's Anatomy of the Eye and Orbit
xxxv. Physiology: Adler's Physiology of the Eye
xxxvi. Easty DL, Sparrow JM.Oxford Textbook of Ophthalmology (2 volumes) Oxford Medical Publications.
xxxvii. Forrester JV, Dick AD, McMenamin PG, Lee WR. The Eye. Basic Sciences in Practice. W B Saunders.

xxxviii. Gass JDM. A Stereoscopic Atlas of Macular Diseases: Diagnosis and Treatment
xxxix. Glaser JS. Neuroophthalmology. LipincottWilliams & Wilkins.
xl. Harry J, Misson G. Clinical Ophthalmic Pathology. Butterworth/Heinemann.
xli. Jimenez Sierra JM, Ogden TE, Van Boemel GB. Inherited Retinal Diseases. A Diagnostic Guide. Mosby.
xlii. Colquhoun, M. C., Evans, T. R., Handley, A. J. (2003) ABC of Resuscitation. Published by BMJ Publishing Group.
xliii. 43. Miller NR, Newman NJ. Walsh and Hoyt's Clinical Neuroophthalmology (5volumes) Williams and Wilkins. This is the principle reference text for neuro-ophthalmology.
xliv. Oyster CW The human eye Sinauer Associates. Sunderland. Massachusetts
xlv. Taylor D. Paediatric Ophthalmology. Blackwell Science.
xlvi. Van Heuven WAJ, Zwann J. Decision Making in Ophthalmology. Mosby. Provides useful guidance concerning how a wide range of conditions should be managed.
xlvii. Wills Eye Manual
xlviii. Kanski's Clinical Ophthalmology – A systematic Approach 9th edition Butterworth / Heinemann.
xlix. Parsons' Diseases of the eye Sihota and Tandon 23rd Edition International Council of Ophthalmology Residency Curriculum available at http://www.icoph.org/

JOURNALS

i. Indian Journal of Ophthalmology
ii. American Journal of Ophthalmology
iii. Ophthalmology
iv. Survey of Ophthalmology
v. International Ophthalmology Clinics
vi. British Journal of Ophthalmology
vii. Cornea
viii. Journal of Cataract and Refractive Surgery

ETHICS AND PROFESSIONALISM IN OPHTHALMOLOGY MEDICAL ETHICS DOCUMENTS

i. The Hippocratic Oath
http://www.nlm.nih.gov/hmd/greek/greek_oath.html

ii. WMA Declaration of Geneva
http://www.wma.net/en/30publications/10policies/g1/

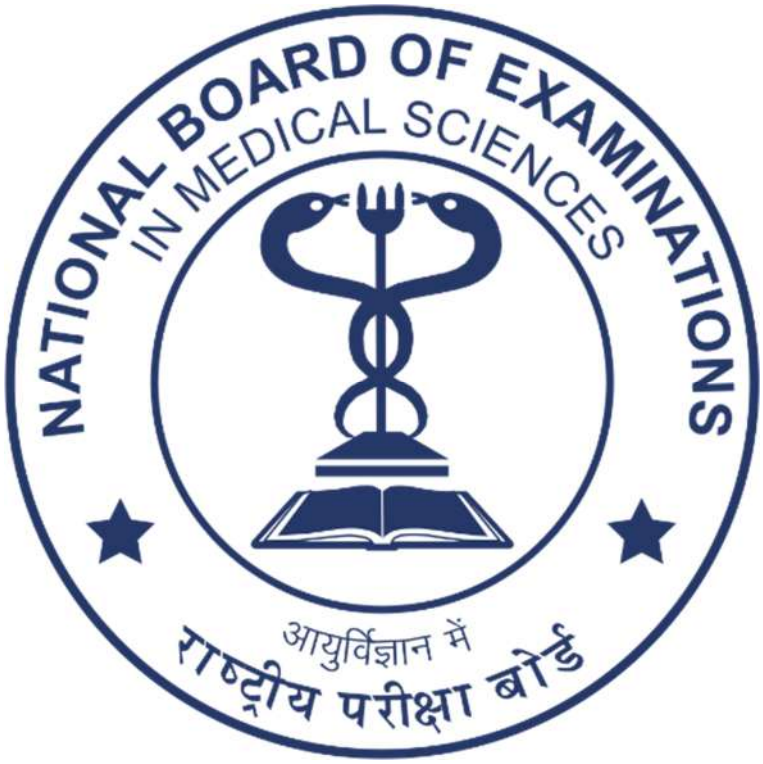
iii. Ethical Code, International Council of Ophthalmology
http://www.icoph.org/pdf/icoethicalcode.pdf

iv. Code of Ethics, American Academy of Ophthalmology
http://www.aao.org/about/ethics/code_ethics.cfm

v. Nuremburg Code
http://ohsr.od.nih.gov/guidelines/nuremberg.html

vi. WMA Declaration of Helsinki
http://www.wma.net/en/30publications/10policies/b3/

vii. Belmont Report
http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html



आयुर्विज्ञान में राष्ट्रीय परीक्षा बोर्ड

स्वास्थ्य एवं परिवार कल्याण मंत्रालय, भारत सरकार

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