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OPHTHALMOLOGY

LOGBOOK-cum-Practical Manual

As per National Medical Commission (NMC): Competency-Based Medical Education (CBME) Curriculum for the Indian Medical Graduate (IMG)



Complementary with Comprehensive Ophthalmology, 8E

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JAYPEE

CONTENTS

Preamble *iii*

Proforma of the Student *v*

Self-declaration Form *vii*

Bonafide Certificate *ix*

General Instructions *x*

Part-I: Practical Ophthalmology: An Insight and Suggestions to Plan, Design and Document Academic Activities **1**

Introduction to Clinical/Practical Ophthalmology *3*

Suggestions to Plan and Design Academic Activities *7*

Templates for Documentation of Academic Activities *20*

- Documentation of Demonstrate, Observe, Assess and Perform (DOAP) Activities *21*
  - Long Case presentation *21*
  - Short Case presentation *25*
  - Objectively Structured Clinical Examination (OSCE) *29*
  - Objectively Structured Practical Examination (OSPE) *30*
- Documentation of Self-directed Learnings (SDL) *31*
- Documentation of AETCOM Activities *32*
- Documentation of Certification of Skills *33*

Part II : Logbook: Record of Academic, AETCOM and Other Activities **37**

- Record of Demonstrate, Observe, Assess and Perform (DOAP) Activities Conducted (Phase II, Clinical Posting) *39*
- Record of Demonstrate, Observe, Assess and Perform (DOAP) Activities Conducted (Phase III, Clinical Posting) *41*
- Record of Small Group Discussions (SGD) *43*
- Record of Certification of Skills *47*
- Record of AETCOM Modules Activities *48*
- Record of Self-directed Learning *49*
- Record of Integrated Sessions *50*
- Record of Assessment of Professionalism *51*
- Record of Attendance *52*
- Record of Details of Attending Extra-class *53*
- Record of Internal Assessment Examinations *54*
- Record of Extra-curricular Activities *55*
- Record of Sports and Physical Education *56*

Final Summary **57**

Part–I

Practical Ophthalmology: An Insight and Suggestions to Plan, Design and Document Academic Activities

- Introduction to Clinical/Practical Ophthalmology
- Suggestions to Plan and Design Academic Activities
- Templates for Documentation of Academic Activities

INTRODUCTION TO CLINICAL/PRACTICAL OPHTHALMOLOGY

CLINICAL OPHTHALMIC TEACHING

Medical graduates have to apply the knowledge gained during their five and a half years of exhaustive study course, for the management and care of a patient in one or the other way. Therefore, it is imperative for them to learn and practise the art of medicine. Consequently, the practical examinations have been given equal importance to that of theory examinations during the entire study course. Practical (clinical) training is thus supplementary and complementary to the theory lecture course.

Competency-based Medical Education (CBME) Curriculum for Indian Medical Graduates (IMG), introduced in the academic year 2019–2020, lays greater emphasis on the acquisition of specific competencies and essential skills.

Methods of Clinical Teaching

Practical (clinical) training in ophthalmology is imparted during the clinical postings in two terms:

- *Ist term*: Four weeks during second phase
- *IInd term*: Four weeks during third phase

As per CBME, the clinical teaching of ophthalmology should be imparted in the form of:

1. Demonstrate, Observe, Assess and Perform (DOAP) activities, which can be accomplished as:
   - Long Case Presentation
   - Short Case Presentation
   - Objectively Structured Clinical Examination (OSCE)
   - Objectively Structured Practical Examination (OSPE)
2. Small Group Discussions (SGD)
3. Self-directed Learning (SDL)
4. Certification of Skills (Skill Demonstration Exercises)
5. Simulation-based Teaching (Skill Lab)
6. Attitude, Ethics and Communication Skills (AETCOM)

DOCUMENTATION/LOGBOOK MAINTENANCE

A logbook, to maintain a record of the activities conducted and the competencies and skills acquired is now a mandatory requirement. A record of activities completed and competencies acquired is necessary to ensure that the learner has acquired the key competencies. The logbook forms an integral part of the formative/continuous assessment programme. In fact the logbook is a verified record of progression of the learner documenting the acquisition of requisite knowledge, skills, attitude and/or competencies. The logbook is thus an academic document that becomes both a snapshot of the progress of the learner as well as a prerequisite for progression to the next phase of learning or graduation from the course.

Advantages of Maintaining Logbook

- To ensure consistent quality and educational standards, logbooks have been introduced in clinical training.
- Logbooks are a collection of learning objectives and additional information concerning a specific educational period.
- Logbooks are widely used to set learning outcomes and to structure and standardize teaching in clinical settings.
- Logbooks provide a clear setting of learning objectives and give trainees and clinical teachers a quick overview of the requirements of training and an idea of the learning progress.
- Logbooks are especially useful if different sites are involved in the training to set a (minimum) standard of training.
- Logbooks assist supervisors and trainees to see at one glance which practice points.
- Logbooks assist supervisors and trainees to see at one glance which learning objectives have not yet been accomplished and to set a learning plan.
- Logbooks facilitate communication between the trainee and clinical teacher.
- They help to structure and standardize learning in clinical settings, especially when multiple sites are involved. Standardization of logbooks in clinical training can increase the number of performed procedures.
- The analysis of logbooks can reveal weak points of training and can evaluate whether trainees have fulfilled the minimum requirements of training.

Terms Used in Logbook

As per CBME curriculum guidelines, following terms are used for the logbook:

Portfolio: It is a collection of learner's progression in the tasks and competencies. A portfolio is an evidence of events documented in the logbook. It includes selected assignments, reflections and learnings from planned activity in the curriculum. The maintenance of portfolio is desirable. If portfolio is not possible to be maintained, an annexure to the logbook can be used for documenting details.

Activity: This term refers to a pre-defined task performed by the learners that contributes to the achievement of stated objectives or competencies

Remedial: Remedial is a planned activity aimed at correcting deficits that prevent a learner from achieving an intended outcome.

Feedback: Feedback is formal active interaction performed at the completion of an observed activity (or activities) intended to facilitate positive change, growth and improvement of the learner through guided reflection of activities performed.

CLINICAL/PRACTICAL EXAMINATIONS IN OPHTHALMOLOGY

Practical examinations in ophthalmology are conducted with the main aims to evaluate a student for his/her capability to identify and diagnose common eye diseases to provide primary eye care and to timely refer the patients needing secondary and tertiary level services to the eye hospitals as per the indications.

Components of Practical Ophthalmology

Commonly employed components of clinical training and evaluation (practical ophthalmology examinations) are as below:

1. Clinical Case Presentation

Under this section, students are trained during their clinical postings and then are assessed during practical examinations for their knowledge and art of a meticulous history taking, methods of examination, diagnostic skills and plan of management of an ophthalmic patient. For this purpose in the examinations, the students are supposed to work up a long case and/or 2 to 3 short cases with common eye disorders.

2. Darkroom Procedures

Students are trained during their clinical postings and then evaluated during practical examinations for their knowledge of basic principles, clinical applications, procedures and the equipment required for the commonly performed darkroom procedures (DRPs).

3. Ophthalmic Instruments and Operative Ophthalmology

The aim of this part is to train the students during their clinical postings and then evaluate during practical examination for their exposure and acquaintance with functioning of the ophthalmic operation theatre.

Students should be able to:

- Identify and tell the utility of common eye instruments,
- Describe the techniques of local ocular anaesthesia, and
- Enumerate the main steps of a few common eye operations.

Students are also supposed to be familiar with the commonly used ophthalmic equipment including use of cryo and lasers in ophthalmology.

4. Objectively Structured Practical Examination (OSPE)

The OSPE allows an overall objectively structured method of evaluating a student for his/her in-depth knowledge on the subject. Students should be trained during their clinical postings and then evaluated in OSPE during practical examinations.

Commonly used Spots for OSPE

i. Any instrument used for ophthalmic surgery

Questions planned are:

- Identify the instrument
- Enumerate its uses
- Common complications in the surgical steps where this instrument is used and their management
- How to sterilize and/or store this instrument?

ii. Any appliance from darkroom procedures such as:
- Snellen's distant vision chart
- Near vision chart
- Trial set box
- Trial frame, pin-hole, occluder or Maddox rod
- Jackson's box cylinder
- Lenses: Concave/convex/spherical vs cylindrical
- Red-green goggles, Worth's four dot test
- Direct ophthalmoscope
- Retinoscope
- Examination lenses such as: 20 D, 78 D, 90 D, Hruby lens, gonioscope

Questions framed for evaluation
- Identify the device
- Enumerate its uses
- Any alternate device to it
- Specific questions for each device

5. Objectively Structured Clinical Examination (OSCE)

A trend for OSCE is increasing, as in addition to the clinical case presentation, the students are judged for their ability to make spot diagnosis of various common eye diseases from the clinical photographs. OSCE becomes especially relevant in the event of lack of clinical material and compulsion to hold online examinations (e.g., as it occurred during COVID-19 pandemic).

Photograph of a Patient Depicting Some Ocular Disease

Commonly used photographs are of a case of typical chalazion, Stye, Hordeolum internum, entropian, ectropian, trichiasis, ptosis, pterygium, vernal catarrh (cobblestone papillae), corneal opacity, corneal ulcer (bacterial, viral, fungal), Iridocyclitis with typical signs, cataract, pseudophakia, esotropia, mucocoele (dacryocystitis).

Questions framed are:
- Make spot diagnosis
- Differential diagnosis of this condition
- Investigations required
- Treatment
- Complications

6. Skill Assessment Exercises

As per new CBME Curriculum the emphasis is on the acquisition of specific competencies and essential skills. During practical examinations, the students may be evaluated by asking them to demonstrate the skills learnt. The common skill exercises to be learnt by the Indian medical graduates as part of the skill development include:

Certifiable Skills as per GMER 2019
- Visual acuity testing (I)
- Digital tonometry (D)
- Instillation of eye medications (I)
- Indirect ophthalmoscopy (O)
- Epilation (O)
- Eye irrigation (I)
- Ocular bandaging (I)

Other skills to be learnt:
- Vision testing for near
- Pin-hole vision test

I: Independently performed on patients.
O: Observed in patients or on simulations.
D: Demonstration on patients or simulations and performance under supervision in patient.

- Colour vision testing
- Demonstration of blink and menace reflexes
- Testing of unilateral ocular movements
- Testing of binocular movements
- Eversion of the upper eyelid
- Lacrimal regurgitation test
- Lacrimal massage technique for congenital dacryocystitis
- Evaluation of pupillary reflexes
- Confrontation test for peripheral visual field charting
- Technique of distant direct ophthalmoscopy
- Technique of direct ophthalmoscopy

7. Viva Questions

- Viva questions form an integral and important part of each section of the practical examination, viz., clinical case presentation, darkroom examination and description of ophthalmic instruments.
- The main aim of the examiner during the session of viva questions is to assess the student's overall familiarity with common disorders of the eye, their management and important recent developments in the field of ophthalmic practice.

AETCOM RELATED TO CLINICAL TRAINING

National Medical Commission has introduced AETCOM (Attitude, Ethics and Communication) skills under the new Competency-based Medical Education (CBME) curriculum. The learning modules on AETCOM for professional year III include a total of 5 modules:

- *Module 3.1:* The foundations of communication – 3
- *Module 3.2:* Case studies in bioethics – Disclosure of medical errors
- *Module 3.3:* The foundations of communication – 4
- *Module 3.4:* Case studies in bioethics – Confidentiality
- *Module 3.5:* Case studies in bioethics – Fiduciary duty

AETCOM *learning modules related To 'Clinical Training'* i.e. history taking and clinical examination include:

- *Module 1.3:* The doctor patient relationship
- *Module 1.4, 2.1, 3.1, 3.3, and 4.1:* The foundation of communication—1, 2, 3, 4, and 5, respectively
- *Module 2.3:* Health care as a right
- *Module 2.7:* Case studies of autonomy and decision making. Student should be able to: Identify, discuss and defend medicolegal and ethical issues that pertain to consent for surgical procedures.

AETCOM Activities

AETCOM activities to be taught, learnt and performed by the students and assessed by the teachers are essential during following circumstances:

- During history taking and examination of the patients.
- During performing any skill exercise.
- During counselling the patient about his/her disease, diagnosis, therapy and prognosis.
- During administering informed consent and counselling for eye surgery.
- During counselling the patient and family about eye donations.
- During addressing the disclosure of medical errors.

ELIGIBILITY TO APPEAR FOR PROFESSIONAL UNIVERSITY EXAMINATIONS

I. Attendance (As per NMC Norms)

- Attendance requirements for eligibility to appear for the university examinations in ophthalmology are:
  - 75% in theory,
  - 80% in practical/clinical, and
  - 75% in Professional Development Programme (AETCOM module)

II. Internal assessment (As per NMC Norms)

Learners must secure at least 50% marks of the total marks (combined in theory and practical/clinical; not less than 40% marks in theory and practical separately)

SUGGESTIONS TO PLAN AND DESIGN ACADEMIC ACTIVITIES

Suggestions are made in this section, as per essential competencies of CBME curriculum, for following activities:

1. DOAP Activities
2. Theory Lectures and Small Group Discussions
3. Self-directed Learning
4. Integrated Sessions
5. Certification of Skills (Skill Demonstration Exercises)
6. AETCOM Module Activities

Suggestions made are not bindings. So, faculty of ophthalmology of each institution can plan topics for the above academic activities as per their own wisdom, after a departmental meeting.

SUGGESTED TOPICS FOR DOAP ACTIVITIES/CLINICAL TEACHING DURING PHASE II: CLINICAL POSTING

Day	Competency	Suggested topic of activity
1	AETCOM 1.3, 1.4, 2.1	Introduction to ophthalmology and foundation of communication
2	**OP 2.2:** Demonstrate the symptoms and clinical signs of common conditions of the lids and adnexa, AETCOM 1.3, 1.4	History taking in ophthalmology and relevant general physical and systemic examination
3	**OP 1.3:** Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin-hole test and the menace and blink reflexes	Vision testing: distance, near, color vision, pin-hole test, menace reflex and blink reflex test
4	**OP 2.2:** Demonstrate the symptoms and clinical signs of common condition of the lids and adnexa	Gross ocular examination including examination of the lids and lacrimal apparatus
5	**OP 6.5:** Describe and discuss the angle of anterior chamber and its clinical correlates **OP 6.6:** Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	Ocular examination of conjunctiva and anterior segment structures
6	OP 8.2, OP 8.3, OP 8.5, AETCOM 3.1	Ocular examination: examination of posterior segment structures, i.e., ophthalmoscopy
7	**OP 1.2:** Define, classify and describe the types and methods of correcting refractive errors	Assessment of refractive errors, retinoscopy, objective and subjective methods
8	**OP 1.3:** Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin-hole test and the menace and blink reflexes	Discuss appliances used in refraction, i.e., trial frame, lenses, pin-hole, occluder, stenopeic slit and retinoscope
9	**OP 1.5:** Define, enumerate the types and the mechanisms by which strabismus leads to amblyopia	Examination of a case of amblyopia and low vision and discuss red-green goggles, Worth four dot test, prisms and common low vision aids
10	**OP 2.2:** Demonstrate the symptoms and clinical signs of common condition of the lids and adnexa	Demonstration of the presentation of a case of chalazion, Stye, small lid tumours
11	**OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ectropion	Examination of lids and presentation of case of entropion and trichiasis
12	**OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ectropion	Examination and presentation of a case of ectropion, discuss its types and management
13	**OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ectropion	Examination of lacrimal apparatus including regurgitation test and presentation of a case of chronic dacryocystitis.
14	**OP 2.3:** Performs the regurgitation test of lacrimal sac, massage technique in congenital dacryocystitis, and trichiatic cilia removal by epilation	Discuss common instruments used for eye lid and lacrimal sac surgeries
15	**OP 3.3:** Describe the etiology, pathophysiology, ocular features, differential diagnosis, and complications and management of various causes of conjunctivitis	Presentation of a case of VKC and its differential diagnosis and management
16	**OP 3.3:** Describe the etiology, pathophysiology, ocular features, differential diagnosis, and complications and management of various causes of conjunctivitis	Presentation of a case of chronic follicular conjunctivitis with its differential diagnosis and management
17	**OP 3.9:** Demonstrate the correct technique of instillation of eye drops in a simulated environment	Demonstrate methods of topical instillation of ocular therapeutics

Day	Competency	Suggested topic of activity
18	**OP 3.1:** Elicit document and present an appropriate history in a patient presenting with a "red eye" including congestion, discharge, pain (differential diagnosis of red eye)	Presentation of a case of acute conjunctivitis and discuss differential diagnosis of red eye, and management of conjunctivitis
19	**OP 3.2:** Demonstrate document and present the correct method of examination of a "red eye" including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness (differential diagnosis of red eye)	Presentation of a case of acute adenoviral conjunctivitis with superficial punctate keratitis and discuss its management
20	**OP 4.1:** Enumerate, describe and discuss the types and causes of corneal ulceration **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation of a case of bacterial corneal ulcer. Discuss its management ◆ Discuss topical antibiotics
21	**OP 4.1:** Enumerate, describe and discuss the types and causes of corneal ulceration **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation of a case of fungal corneal ulcer and discuss its management ◆ Discuss antifungal drugs
22	**OP 4.1:** Enumerate, describe and discuss the types and causes of corneal ulceration **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation of a case of viral corneal ulcer and discuss its management ◆ Discuss antiviral drugs
23	**OP 3.6:** Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	Presentation of a case of pterygium, discuss its differential diagnosis and management
24		Ward leaving test

SUGGESTED TOPICS FOR DOAP ACTIVITIES/CLINICAL TEACHING DURING PHASE III: CLINICAL POSTING

Day	Competency	Topic of activity
1	**OP 2.2:** Demonstrate the symptoms and clinical signs of common condition of the lids and adnexa, AETCOM 1.3, 1.4	Revision of history taking in ophthalmology and relevant general physical and systemic examination
2	OP 1.3, OP 2.2, OP 6.5, OP 8.2, OP 8.3, OP 8.5, AETCOM 3.1	Revision of complete ocular examination
3	**OP 2.2:** Demonstrate the symptoms and clinical signs of common condition of the lids and adnexa **OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: Bell's phenomenon, assessment of entropion/ectropion	Revision of common eyelid conditions by demonstration/ short case presentation
4	**OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: Bell's phenomenon, assessment of entropion/ectropion	Revision of common disorders of lacrimal apparatus: case demonstration/short case presentation
5	**OP 3.1:** Elicit document and present an appropriate history in a patient presenting with a "red eye" including congestion, discharge, pain (differential diagnosis of red eye) **OP 3.2:** Demonstrate document and present the correct method of examination of a "red eye" including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness (differential diagnosis of red eye) **OP 3.6:** Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	Revision of common disorders of conjunctiva: demonstration/short case presentation of common conjunctival condition (conjunctivitis, trachoma, pterygium, concreation, pinguicula, Bitot spot/xerosis)
6	**OP 7.3:** Demonstrate the correct technique of ocular examination in a patient with a cataract **OP 7.6:** Administer informed consent and counsel patients for cataract surgery in a simulated environment	Examination and clinical workup of a case of cataract Counselling and consent for cataract surgery
7	**OP 7.4:** Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	Presentation of a case of nuclear cataract, and discuss its management Describe surgical steps of conventional ECCE
8	**OP 7.4:** Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	Presentation of a case of MSC and discuss its management Describe surgical steps of manual SICS
9	**OP 7.4:** Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	Presentation of a case of IMSC and discuss its management Describe surgical steps of phacoimulsification
10	**OP 7.4:** Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	Presentation of a case of pseudophakia and discuss complications of cataract surgery
11	**OP 7.4:** Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	Demonstrate and discuss common instruments used for cataract surgery
12	**OP 6.7:** Innumerate and discuss the etiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation of a case of acute congestive glaucoma and discuss differential diagnosis of red eye and management of acute glaucoma ◆ Anti-glaucoma drugs

Day	Competency	Topic of activity
13	**OP 6.7:** Innumerate and discuss the etiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions **PH 1.58:** Describe drugs used in ocular disorders	Presentation of a case of primary open angle glaucoma (PAOG) discuss its management
14	**OP 6.4:** Describe and distinguish hyphema and hypopyon **OP 6.5:** Describe and discuss the angle of anterior chamber and its clinical correlates **OP 9.5:** Describe the evaluation and enumerate the steps in the stabilisation, initial management and indication for referral in a patient with ocular injury	◆ Presentation of a case of hyphema and other traumatic ocular lesions ◆ Innumerate glaucomas associated with narrow and open angle of anterior chamber ◆ Discuss management of traumatic ocular lesions
15	**OP 9.1:** Demonstrate the correct technique to examine extraocular movements (uniocular and binocular)	Presentation of a case of esotropia. Record uniocular and binocular eye movements
16	**OP 9.1:** Demonstrate the correct technique to examine extraocular movements (uniocular and binocular)	Presentation of a case of exotropia. Discuss its management. Record of uniocular and binocular movements
17	**OP 9.1:** Demonstrate the correct technique to examine extraocular movements (uniocular and binocular)	Discuss various orthoptic instruments such as Maddox rod, prism bars, red and green goggles, stereopsis charts
18	**OP 2.6:** Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	Demonstration/presentation of a case of proptosis, discuss its differential diagnosis and principles of its management
19	**OP 3.9:** Demonstrate the correct technique of instillation of eye drops in a simulated environment **OP 6.7:** Innumerate and discuss the etiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions **OP 2.3:** Demonstrate under supervision clinical procedures performed in the lid including: Bell's phenomenon, assessment of entropion/ectropion	◆ Demonstration of common skill exercises: Digital tonometry, instillation of eye medication, ocular bandaging ◆ Clinical features of open and narrow angle glaucomas ◆ Demonstration of Bell's phenomenon and epilation of trichiasis
20	**OP 3.1:** Elicit document and present an appropriate history in a patient presenting with a "red eye" including congestion, discharge, pain (differential diagnosis of red eye) **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation of a case of acute iridocyclitis and discuss differential diagnosis of red eye, and management of iridocyclitis ◆ Discuss cycloplegic drugs and corticosteroids
21	**OP 4.1:** Enumerate, describe and discuss the types and causes of corneal ulceration **PH 1.58:** Describe drugs used in ocular disorders	◆ Presentation/demonstration of a case of corneal ulcer/ corneal opacity ◆ Discuss topical antibiotics, antiviral and antifungal drugs
22	**OP 3.8, OP 4.8:** Demonstrate the correct technique of removal of foreign body from the eye, cornea in a simulated environment	Technique of removal of foreign body from the conjunctiva and cornea
23	**OP 4.10:** Counsel patients and family about eye donation in a simulated environment	Counsel patients and family about eye donation in a simulated environment
24		Ward leaving test

SUGGESTED PLAN FOR THEORY LECTURES AND SMALL GROUP DISCUSSION TOPICS

For proper understanding theoretical teaching need to be planned in a systematic and cohesive way. So, a plan is suggested to teach section-wise in the form of a combined scheme of theory lectures and small group discussion topics. Further, all the related competencies have been clubbed together in different sections. Suggestion is also made that preferably one complete section should be taught by the same teacher for a continuous and coherent teaching. It is hoped the suggested scheme of theoretical teaching will keep the teaching and learning process simple for students as well as teachers. The overall endeavour is to follow the guidelines of National Medical Commission (NMC) to produce competent Indian Medical Graduates (IMG).

The section-wise, suggested teaching plan of clubbed theory lectures and small group discussion topics is given below:

Theory and Small Group Discussion (SGD) Teaching Schedule

T: Theory Lectures (30), SGD: Small Group Discussion (60)

S. No.	Name of topic and competencies covered	Teaching method T/SGD	Total classes: T + SGD (allotted)	Teacher's name
1.	**ANATOMY AND PHYSIOLOGY OF EYE AND VISION** ***AN 41.1, AN 41.2, AN 41.3, AN 31.3, OP 1.1, PY 10.17***		05	
	AN41.1: Describe and demonstrate parts and layers of eyeball	1 T		
	AN41.2: Describe the anatomical aspects of central retinal artery occlusion, cataract, glaucoma	1 T		
	AN41.3: Describe the position, nerve supply and actions of intraocular muscles	1 SGD		
	AN31.3: Describe anatomical basis of Horner's syndrome	1 SGD		
	OP1.1: Describe the physiology of vision (including brief discussion on anatomy of eye)			
	PY10.17: Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, refractive errors, colour blindness, physiology of pupil and light reflex	1 SGD		
2.	**OPTICS AND REFRACTION** ***PY 10.17, OP 1.2, OP 1.4***		07	
	PY 10.17: Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colourblindness, Physiology of pupil and light reflex	3 T		
	OP1.2: Define, classify and describe the types and methods of correcting refractive errors	2 SGD		
	OP1.4: Enumerate the indications and describe the principles of refractive surgery	2 SGD		
3.	**DISEASES OF CONJUNCTIVA** ***OP 3.3, OP 3.4, OP 3.5, OP 3.6, OP 3.7***		07	
	OP 3.3: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis	3 SGD		
	OP 3.4: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma	1 T		
	OP 3.5: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	1 T		
	OP 3.6: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	1 SGD		
	OP 3.7: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	1 SGD		

S. No.	Name of topic and competencies covered	Teaching method T/SGD	Total classes: T + SGD (allotted)	Teacher's name
4.	**DISEASES OF CORNEA AND SCLERA** ***OP 4.1, OP 4.2, OP 4.3, OP 4.6, OP 5.1, OP 5.2***		07	
	OP 4.1: Enumerate, describe and discuss the types and causes of corneal ulceration	1 SGD		
	OP 4.2: Enumerate and discuss the differential diagnosis of infective keratitis	2 SGD		
	OP 4.3: Enumerate the causes of corneal edema	1 SGD		
	OP 4.6: Enumerate the indications and the types of keratoplasty	1 SGD		
	OP 5.1: Define, enumerate and describe the etiology, associated systemic conditions, clinical features complications, indications for referral and management of episcleritis	1 T		
	OP 5.2: Define, enumerate and describe the etiology, associated systemic conditions clinical features, complications, indications for referral and management of scleritis	1 T		
5.	**DISEASES OF EYELIDS AND ORBIT** ***OP 2.1, OP 2.3, OP 3.7, OP 4.7, OP 2.4, OP 2.5, OP 2.6, OP 2.7, OP 2.8***		08	
	OP 2.1: Enumerate the causes, describe and discuss the etiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	2 T		
	OP 2.3: Demonstrate under supervision clinical procedures performed in the lid including: Bell's phenomenon, assessment of entropion/ectropion, perform the regurgitation test of lacrimal sac, massage technique in congenital dacryocystitis, and trichiatic cilia removal by epilation	1 SGD		
	OP 3.7: Describe the etiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	1 SGD		
	OP 4.7: Enumerate the indications and describe the methods of tarsorrhaphy	1 SGD		
	OP 2.4: Describe the etiology, clinical presentation. Discuss the complications and management of orbital cellulitis **OP 2.5:** Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	1 SGD		
	OP 2.6: Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	1 SGD		
	OP 2.7: Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumors	1 SGD		
	OP 2.8: List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral			
6.	**DISEASES OF CRYSTALLINE LENS** ***AN 41.2, OP 7.1, OP 7.2, OP 7.4, IM 24.15***		08	
	AN 41.2: Describe the anatomical aspects of cataract, glaucoma and central retinal artery occlusion **OP 7.1:** Describe the surgical anatomy and the metabolism of the lens	1 SGD		
	OP 7.2: Describe and discuss the etiopathogenesis, stages of maturation and complications of cataract	3 T		
	OP 7.4: Enumerate the types of cataract surgery and describe the steps, intraoperative and postoperative complications of extracapsular cataract extraction surgery	3 SGD		

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OPHTHALMOLOGY

LOGBOOK-cum-Practical Manual

Competency-based Medical Education (CBME) Curriculum for Indian Medical Graduates (IMG), introduced in the academic year 2019–20, lays greater emphasis on the acquisition of specific competencies and essential skills. A logbook, to maintain a record of the activities conducted and the competencies and skills acquired is now a mandatory requirement. Thus, the logbook forms an integral part of the formative assessment programme. In fact the logbook is a verified record of progression of the learner documenting the acquisition of requisite knowledge, skills, attitude and/or competencies. So, efforts have been made to prepare a student and teacher friendly logbook, as per CBME curriculum document of NMC. In addition to record of academic activities, provision for documentation of all the activities and an insight into the purpose and method of teaching practical ophthalmology have also been made. So, this document has been named as *Logbook-cum-Practical Manual* and has been divided into two parts:

PART I: Practical Ophthalmology: An Insight and Suggestions to Plan, Design and Document Academic Activities. This part includes:

- Introduction to clinical/practical ophthalmology
- Suggestions for planning and designing academic activities
- Templates for documentation of academic activities

PART II : Logbook: Record of Academic, AETCOM and Other Activities. Template for record of each activity has been suggested in this part. Record of Demonstrate, Observe, Assess and Perform (DOAP) Activities can be maintained for following activities:

- Long case presentation
- Short case presentation
- Objectively Structured Clinical Examination (OSCE)
- Objectively Structured Practical Examination (OSPE)

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Dr Khurana has published more than 220 scientific papers in national and international journals of repute. He has also contributed several chapters for postgraduate reference books published in India and abroad. He has also been Editor of Haryana Journal of Ophthalmology, Indian Journal of Strabismus and Pediatric Ophthalmology (IJSPO), and North Zone Journal of Ophthalmology. He was awarded WHO Fellowship for higher studies at Moorfields Eye Hospital, London. He was also selected for a course and awarded certificate in Tropical Ophthalmology at International Centre for Eye Health, Institute of Ophthalmology, University of London, UK. He has been honored with Distinguished Author Award by the Federation of Educational Publishers of India, HOS Award for Excellence in Ophthalmology, Excellence Award by Strabismological Society of India, Gold Medal by Intraocular Implant, Refractive Society of India, Lifetime Achievement Award by HOS and National Lifetime Achievement Award by Uttarakhand State Ophthalmological Society (UKSOS), PN Sinha Oration Award by Bihar Ophthalmological Society (BOS) and Fellowship of All India Collegium of Ophthalmology (FAICO).

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