



DEPARTMENT OF OPHTHALMOLOGY  
STUDY GUIDE  
MBBS YEAR III-IV  
2020-2021



BAQAI MEDICAL COLLEGE  
BAQAI MEDICAL UNIVERSITY

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## VISION & MISSION

### Baqai Medical University Vision Statement:

Baqai Medical University is a community based and community oriented center of excellence striving to mold students to become competent and caring health professionals, groomed to be social leaders capable of improving health, education and socioeconomic well-being locally, nationally and globally.

### Baqai Medical University Mission Statement:

The mission of Baqai Medical College is to be recognized as a center of excellence in education, research, patient care and community services by producing highly capable and knowledgeable professionals

### Baqai Medical College Vision Statement:

Our vision is to enhance the access and excellence in medical education and research, with the aim of capacity building of students and faculty through innovations, and science and technology competencies, to achieve rapid and sustainable health. The medical graduate thus produced will be informed and trained enough to serve the community better, and to be advisor to the national and international health organizations.

### Baqai Medical College Mission Statement:

The mission of the Baqai medical college is to produce medical graduates, who are accomplished individuals and have skills for problem solving, clinical judgment, research & leadership for medical practice at the international level and are also aware of the health problems of the less privileged rural and urban population of Pakistan.

## Outcomes of the MBBS Program

By the end of five years MBBS program, The Baqai Medical College graduate will be able to:

- Write and report focused history, perform physical examination, formulate a diagnosis and management plan for common health problems.
- Utilize knowledge of basic and clinical sciences for patient care.
- Apply evidence-based practices for protecting, maintaining and promoting the health of individuals, families and community.
- Identify problems, critically review literature, conduct research and disseminate knowledge
- Lead other team members as per situational needs for quality health service.
- Acquire professional behaviours that embodies lifelong learning, altruism, empathy and cultural sensitivity in provision health care service.

## POLICIES AND PROCEDURES

Code of Conduct and Maintenance of Discipline of Students Regulations  
Under section 25(e) BMU Act.1996

All University students shall be under the full disciplinary control of the University. No students shall be allowed to participate in politics. The action against the act of indiscipline shall include fines, debarring from attending class and cancellation of admission, depending on the gravity of indiscipline.

The following shall constitute acts of indiscipline for which action may be taken against the student or students:

- (a) Breach of any rule public morals, such as:
  - Use of indecent or filthy language;
  - Use of immodest dress:
  - Use of undesirable remarks or gestures; and
  - Disorderly behavior, such as shouting, abusing, quarrelling, fighting and insolence.
- (b) Defiance of authority
- (c) Action, defamatory of and derogatory to Islam
- (d) Immorality
- (e) Being found under the effect of an intoxicant or misuse of drugs including marijuana, LSD dope and other opioids.
- (f) False personation or giving false information or willful suppression of information, cheating or deceiving.
- (g) Inciting or staging a walk-out, a strike or an unauthorized procession.
- (h) Shouting of slogans derogatory to the prestige of the University or the reputation of its officers or teachers.
- (i) Visiting without a pass places which are not to be visited without a pass.
- (j) Visiting places declared out of bounds for students

Every student must carry his / her Identity Card which will be open to

examination and will be demanded at the time of entrance to the various University Faculties and functions.

No. student will be admitted to the facilities of the library, transport or the canteen unless he /she is in possession of the Identity Card

## Introduction

Preventable and / or treatable blindness is a huge burden on various aspects of developing countries' functioning. This is particularly true in Pakistan where, according to a relatively recent study <sup>1</sup>, about 1.2 million people are blind, and several times of that number suffer from subnormal vision due to diseases that could have been prevented or treated if early intervention was done.

This is the reason why the health authorities of Pakistan give stress on the course of ophthalmology, which seems out of proportion to that in advanced countries <sup>2</sup>. Furthermore, since prevention and early intervention can very easily reduce this load, the Baqai University, being a community oriented university, stresses on the preventive and community aspect of ophthalmology

### References:

- 1 Hassan B, Ahmed R, Li B, Noor A, Hassan ZU. A comprehensive study capturing vision loss burden in Pakistan (1990-2025): Findings from the Global Burden of Disease (GBD) 2017 study. PLoS One. 2019 May3;14(5)
- 2 Hill S, Dennick R, Amoaku W. Present and future of the undergraduate ophthalmology curriculum: a survey of UK medical schools. Int J Med Educ. 2017 Nov 2;8:389-395

## TEACHING / LEARNING ACTIVITIES AND MODES OF TEACHING AND ASSESSMENT

Learning activities, apart from the weekly didactic lecture, are to be student oriented and case based. Incentive of students is crucial and it should be developed as the students learn the problem-solving skills, early during the learning process.

## CLINICAL TEACHING AND ASSESSMENT

The goal at the end of the four weeks of fourth year clinical rotation will be -that the student is able to identify the common eye diseases in real patients and demonstrate the knowledge of risk factors and principals of management of these diseases, especially the ocular emergencies and preventable/ treatable diseases causing blindness.

They will also be required to perform common outpatient ophthalmic procedures without supervision. In addition, they should be familiar with the surgical procedures routinely performed in the eye OPD and OT. (Observer status).

The clinical / practical aspects of all the topics included in the weekly lecture program will be covered during the clinical rotations. (Vide Infra)

## Clinical Time Table-4<sup>th</sup> Year

At the outset, students will be divided in smaller, equal, sub-groups of their own choice, facilitators intervening only if the groups are too lopsided in any sense. One of the groups will attend the twice weekly operating sessions in the OR in rotation.

A review of basic ocular anatomy, physiology and the ophthalmic history taking and clinical examination will be covered in the first two days. Thereafter the following schedule will be followed.

### 10.15 AM to 10.30 AM

Assembling and attendance

### 10.30 AM to 11.30 AM

A real or virtual case / problem will be given to the students and an hour allowed to find the answers on their own, after brain storming, using prior clinical experience in third year, and referring to text books, internet, etc.

### 11.30 AM to 1.00 PM

An interactive session with the facilitator acting as a coordinator / tutor. This session will include real patients, observed by the students by means of real-time slit lamp imaging (Developed ingeniously) at the Eye Department BMU), or, in lieu of real patient, using digital images / videos captured during earlier sessions, assignments, role plays, inter-student discussions etc. according to the topic being discussed.

### 1.30 PM To 3.30 PM (Mondays and Tuesdays)

Tutorials of the clinical skills the students are required to perform on their own

(vide infra).

(NEEDS SUPERVISION – THIS CANNOT BE JUSTIFIED ACCORDING  
TO PMC RULES.)

## Clinical Skills of Ophthalmic Procedures

### Definition of Levels of Skills / Competence

Level-1 Have Observed

Level-2 Able to Assist

Level-3 Perform Under Supervision

Level-4 Perform Independently

### LEVEL 4 Skills

(To be learnt on real patients by means of closed circuit live display from the slitlamp, assisted by recorded videos / animations / Simulations), and performed on real or simulated patients.

- 1- Determine Visual Acuity (with and without Pinhole), and record it.
- 2- Perform ocular examination of eye with torch (up to the lens) and record normal and abnormal findings.
- 3- Elicit pupillary light reflexes and demonstrate relative afferent pupillary defect (RAPD) by means of Swinging Flashlight Test
- 4- Perform Regurgitation Test for blocked nasolacrimal duct and interpret the result.
- 5- Evert the upper eyelid and determine presence of follicles, papillae, and foreign body, if any of these are present.
- 6- Determine any ocular deviation by means of Hirschberg corneal reflex test, and perform cover/ uncover test to determine orthophoria or any deviation and its type.

7- Determine grossly abnormal intraocular pressure by means of digital palpation.

8- Determine integrity of the Visual Fields by means of confrontation test.

9- Determine integrity of color vision by means of Ishihara Test. (Simulation for interpretation)

10- Determine and measure Diplopia by means of Hess Chart (by computer simulation as Hess Screen not available)

11- Conduct Computerized Automated Perimeter (On computer simulation as Equipment not available)

## Clinical Time Table-3rd year MBBS

The goal during the clinical rotations in 3<sup>rd</sup> Year MBBS is to familiarize the students, at the outset, about the type of diseases that commonly occur in our population, and how they are presented in the OPD. This will make the systematic approach, which they will follow in the fourth year, more meaningful; a long term flipped learning.

Initial two days' interactive discussions, with the aid of images, motion pictures and animations, will introduce the students to clinical anatomy, basic physiology, history taking and examination. At the end of these second day they will be required to demonstrate their ability to tell normal anatomy from abnormal, up to the level of crystalline lens, using torch light, on patients or by means of images.

They will spend rest of their time in the Out Patient Department, facilitated by the consultants/ registrars present in the OPD. They will be encouraged to actively initiate the learning process, and this will be a part of the internal evaluation.

The grade will be the Low-stakes internal evaluation, and will be based on formative assessment and attendance. There will be no high-stakes summative assessment in 3<sup>rd</sup> year.

# COMPUTATION OF THE TEACHING HOURS

## 4<sup>th</sup> Year MBBS

(According to the Lecture / Clinics program provided for 2021)

### LECTURES:

Once weekly \_\_\_\_\_ 60 min: Duration  
36 lectures per year                       $36 \times 60 \text{ min} = 2160 \text{ minutes} / 60$

= TOTAL 36 hours

Special Lecture before Annual Theory Exam. (Last Minute Checklist)

02 hours

Special lecture before annual practical / viva exams

02 Hours

### CLINICAL POSTING:

10:30am to 01:00pm                      (2.5 hrs or 150min) 5 days/week

$150 \text{ min} \times 5 = 750 \text{ min per week} / 60 = 12.5 \text{ hrs}$

$12.5 \times 36 =$

TOTAL 450 hours

### Tutorials:

Twice a week 1:30pm to 03:30pm

4 hours per week

36 x 4 = 144hrs

TOTAL 144hrs

### COMPUTATION

Lectures (including special lectures)	30	hours per year
Clinics	55	hours per year
Tutorial	16	
Total hours	101	hours (4 <sup>th</sup> year MBBS)

PLEASE MAKE NECESSARY CORRECTIONS

## 3<sup>rd</sup> year MBBS Clinical Rotation

Monday	10:30am to 01:00pm= 2 hours 30min (150min)
Tuesday	10:30am to 01:00pm= 2 hours 30min (150min)
Wednesday	11:00am to 01:00pm= 2 hours (120 min)
Thursday	10:30am to 01:00pm= 2 hours 30 min (150min)
Friday	10:30am to 01:10pm = 2 hours 40 min (160min)

MINUTES OF EACH WEEK (730min) converted into hours = 12.15 hours

### GRAND TOTAL HOURS OF MBBS PROGRAM COMBINED

2<sup>nd</sup> year total teaching hours = 02 hours

3<sup>rd</sup> year total teaching hours = 52 hours

4<sup>th</sup> year total teaching hours = 101 hours

GRAND TOTAL HOURS OF MBBS PROGRAM COMBINED = 155 hours.

PLEASE MAKE NECESSARY CHANGES

## LECTURE PROGRAMME

### FOURTH YEAR MBBS 2020-2021

TIME 9:30 AM TO 10:30 AM (Once a week on Tuesdays)

(NOTE: a list of Specific Learning Outcomes will be provided at the start of each lecture See Appendix)

DATE	SUBJECT	TOPIC	LECTURER
Dec 10-2020	INTRODUCTION	Syllabus and general protocols for 4 <sup>th</sup> year MBBS BMC regarding ophthalmology	
Dec 17-2020	CONJUNCTIVA	ANATOMY	
		INFECTIVE CONJUNCTIVITIS	
Jan 07-2020		ALLERGIC CONJUNCTIVITIS	
		VERNAL KERATOCONJUNCTIVITIS	
Jan 14-2020		PTERYGIUM AND ITS MANAGEMENT	
Jan 21-2020		ANATOMY CLASSIFICATION OF LID DISEASES	
Jan 28-2020		BLEPHARITIS, STYE, CHALAZION	
Feb 04-2020		EYELID TUMORS, ENTROPION, ECTROPION, TRICHIASIS, PTOSIS	
Feb 11-2020		Anatomy of cornea and characteristics of different layers	
Feb 18-		RISK FACTORS, COMPLICATION AND	

2020	MANAGEMENT OF CORNEAL ULCERS MANAGEMENT OF HSV KERATTITS	
Feb 25-2020	OCULAR FOREIGN BODIES  CLOSED AND OPEN GLOBE INJURIES	
March 03-2020	CHEMICAL INJURIES AND ITS MANAGEMENT	
March 10-2020	ANATOMY EPISCLERITIS AND SCLERITIS	
March 17-2020	ANATOMY COMPOSITION & FUNCTIONS OF TEAR FILM  PRODUCTIONS AND DRAINAGE OF TEARS	
March 24-2020	KERATOCONJUNCTIVITIS SICCA (KCS)  EPIPHORA AND DACRYOCYSTITIS	
March 31-2020	ANATOMY SIGNS OF INFLAMATION ANTERIOR UVEITIS	
April 07-2020	ANATOMY  CLASSIFICATION OF CATARACT	
April 14-2020	ACQUIRED CATARACT	
April 21-2020	CONGENITAL CATARACT AND ITS MANAGEMENT	
April 28-2020	PHYSIOLOGY OF AQUEOUS HUMOUR FORMATION AND ITS CIRCULATION MEASUREMENT OF IOP	
	GLAUCOMA DEFINITION, CLASSIFICATION OF GLAUCOMA	

May 5-2020	PRIMARY OPEN ANGLE GLAUCOMA AND ITS MANAGEMENT	
May 12-2020	ACUTE ANGLE CLOSURE GLAUCOMA	
July 07-2020	SECONDARY GLAUCOMA DUE TO HYPERMATURE CATARACT AND UVEITIS AND ITS MANAGEMENT	
July 14-2020	RETINAL DETACHMENT	
July 21-2020	DIABETIC RETINOPATHY HYPERTENSIVE RETINOPATHY	
July 28-2020	BRANCH RETINAL VEIN OCCLUSION CENTRAL RETINAL VEIN OCCLUSION CENTRAL RETINAL ARTERY OCCLUSION	
	ANATOMY PAPILLOEDEMA RETINOBLASTOMA OPTIC NEURITIS	
Aug 04-2020	OPTIC ATROPHY	
Aug 11-2020	PUPILARY REFRAKES AND THEIR COMMON ABNORMALITIES	
Aug 18-2020	ANATOMY FIELD DEFECTS IN NEUROLOGICAL LESIONS	
	ANATOMY	
Aug 25-	ORBIT CELLULITIS PROPTOSIS	

2020		
Sep 01-2020		XEROPHTHALMIA CLASSIFICATION AND ITS MANAGEMENT
Sep 08-2020		EMETROPIA, MYOPIA, HYPERMETROPIA, ASTIGMATISM, PRESBYOPIA, ANISOMETROPIA, AMBLYOPIA
Sep 15-2020		DEFINATION OF ESPTROPIA AND EXOTROPIA, CLASSICATION AND PRINCIPLE OF MANAGEMENT
Sep 22-2020		CLASSIFICATION AND ITS MANAGEMENT
Sep 29-2020		DIFFERENTIAL DIAGNOSIAL OF SUDDEN AND GRADUAL ONSET OF VISIOSN
	EVALUATION TEST	INTERNAL EVALUATION TEST (THEORY)  9:30 AM onwards. Lecture Halls # 13 & 14

\* Vide appendix for Detailed SLOs

## APPENDIX

### SPECIFIC LEARNING OUTCOMES OF LECTURES

At the commencement of every lecture well defined specific learning outcomes (SLOs) of that day's lecture will be presented and it will be stressed that at the end of this lecture the student should be able to demonstrate the knowledge and comprehension of the given points, as assessed by any suitable assessment tool.

FOLLOWING ARE THE SLOs TO BE PRESENTED BEFORE EVERY LECTURE (Vide Supra), AND THESE WILL BE PRESENTED AGAIN AT THE END OF THE LECTURE. FORMATIVE ASSESSMENT WOULD BE DONE BY MEANS OF A SHORT INTERACTIVE SESSION.

#### CONJUNCTIVA

##### Conjunctiva 1

Differentiation of different parts of conjunctiva

Blood supply, and lymphatic drainage of conjunctiva

Identification of an inflamed conjunctiva

Differentiation between ciliary and conjunctival congestion

Differentiation between Viral, Allergic, and Bacterial conjunctivitis

Basic principles of management of bacterial conjunctivitis.

##### Conjunctiva 2

Main symptoms of allergic conjunctivitis

Hallmark symptoms of Vernal Kerato-conjunctivitis (VKC)

Diagnostic signs of VKC

Complications of VKC

Basic principles of VKC management

##### Conjunctiva 3

Definition of pterygium

Basic pathogenesis of pterygium

Signs and symptoms of pterygium

Difficulties encountered during and after its surgery and ways to counter them

## EYELIDS

At the end of the lectures to student should be able to demonstrate his knowledge of the following, whichever suitable tool of assessment is employed.

### Eyelids 1

Blood supply, innervation, and lymphatic drainage of the eyelids.

Tissue layers of the eyelids.

Normal position of the eyelids. Lid margins, and the eyelashes

Muscles involved in opening and closing of the eyelids

Broad classification headings of the eye lid disorder according to the pathogenesis.

### Eyelids 2

Definition of blepharitis

Types of blepharitis with signs and symptoms of each type

Principals of management of the two types of blepharitis

Etiology, basic pathology, signs and symptoms, and management of sty (hordeolum externum)

Etiology, basic pathology, signs and symptoms, and management of chalazion

Cause, basic pathology, and management of infected chalazion (hordeolum internum)

Differences between the a sty and chalazion

### Eyelids 3

Clinical appearance, behavior, and management of Basal Cell Carcinoma

Knowledge that Squamous Cell Carcinoma and Adenocarcinomas are second common tumors

Knowledge that it is possible that rarely any type of tumor can arise from any tissue

the eye lids are made of.

Definition, common causes, complications and principles of management of Entropion

Definition, common causes, complications and principles of management of Ectropion

Definition, common causes, complications and principles of management of Trichiasis

Definition of ptosis, knowledge that it can be congenital and acquired, and that a unilateral congenital ptosis can produce amblyopia unless surgically corrected before

7

years

of age.

## CORNEA

### Cornea1

Functions of cornea.

Name the different layers of cornea (from anterior to posterior).

Main histological characteristics of each layer.

Particular functions of each layer.

How each layer responds to injury.

How the cornea is kept clear.

### Cornea 2

The predisposing factors for corneal infections

General clinical presentation of bacterial and fungal corneal ulcers.

Principles of management of bacterial and fungal corneal ulcers.

Common complications of bacterial and fungal corneal ulcers.

Clinical features of herpes simplex keratitis

Management of herpes simplex keratitis.

## OCULAR TRAUMA

### Ocular Trauma 1

Definition and clinical features of hyphema

Complications of hyphema

Management of hyphema

Diagnosis of superficial foreign bodies of ocular surface

Management of superficial foreign bodies of ocular surface

Principles of management of ocular penetrating injuries, with and without retained foreign bodies

Ocular Trauma:

Emergency management of chemical burns of the eye

Definition of sympathetic ophthalmitis

Prevention and management of sympathetic ophthalmitis

## SCLERA

Gross and microscopic anatomy of sclera

Functions of sclera

General clinical features of episcleritis

General clinical features of different types of scleritis

Systemic disease associations of scleritis

Principles of management of scleritis.

## LACRIMAL APPARATUS

Lacrimal apparatus 1

Composition of the tearfilm

Formation of different elements of tearfilm

Normal production of different elements of the tearfilm

Normal drainage of tears

Lacrimal apparatus 2

Common causes and clinical features of dry eyes

Principles of management of dry eyes

Common systemic associations of dry eye

Difference between epiphora and lacrimation

Congenital and acquired blocked naso-lacrimal blockage

Clinical features and management of acute dacryocystitis

Clinical features and management of chronic dacryocystitis

Basic principle of dacryo-cystorhinostomy

## UVEAL TRACT

Typical clinical features of anterior uveitis

General principles of management of most common types of anterior uveitis

Differentiating features from other causes of redefeyes.

## CRYSTALLINE LENS

Lens 1

Definition of cataract

Anatomy of lens capsule, fibers and suspensory ligaments

Classification of cataract

Lens 2

Common morphological types of senile cataract and their typical symptoms

Principles of cataract surgery

Pre-operative evaluation for cataract surgery, including biometry

Major steps of phacoemulsification

Major operative and post-operative complications of phacoemulsification

Lens 3

Lamellar congenital cataract, its morphology and causes

Special problems in the management of congenital cataract

Cataract secondary to systemic diseases, corticosteroids, uveitis and trauma

## GLAUCOMA

Glaucoma 1

Formation and circulation of aqueous.

Measurement of intra ocular pressure

Definition and classification of glaucoma

Glaucoma 2

Definition of primary open angle glaucoma (POAG)

Clinical features and diagnostic modalities of POAG

Glaucoma 3

Definition and pathogenesis of primary angle-closure glaucoma (PACG)

Clinical features and management of PACG

Main features of secondary glaucoma due to uveitis, cataract and corticosteroids

Glaucoma 4

Principles of medical management of glaucoma

Main classes of antiglaucoma drugs and their mode of action

Principles of surgical management of glaucoma

## VITREO-RETINA

Vitreo-retina 1

General anatomical landmarks of retina and vitreous

Common causes, and symptoms of vitreous hemorrhage

Significance and clinical features of posterior vitreous detachment

Clinical features predisposing factors and emergency measures for primary retinal detachment

Vitro-retina 2

Clinical features, complications and management of central and branch vein occlusion

Clinical features and significance of central and branch artery occlusion

Vitreo-retina 3

EDTRS classification of diabetic retinopathy (DR)

Prevention, and management of DR in different stages

Simple classification of hypertensive retinopathy

Vitreo-retina 4

Heredity, clinical features and prognosis of retinoblastoma

Principles of management of retinoblastoma

Hereditary pattern and clinical features of retinitis pigmentosa

### OPTIC NERVE

Anatomy of optic nerve

Assessment of optic nerve function

Definition, significance and ophthalmoscopic appearance of papilledema

Major causes and symptoms of optic neuritis (papillitis and retrobulbar neuritis)

Ophthalmic appearance of major types of optic atrophy

### PUPIL

Nerve supply to the pupillary muscles

Normal response of the pupil to light and accommodation

Effects of interruptions in the different levels of innervation on pupillary reflexes

Common abnormalities in pupillary responses

### VISUAL PATHWAYS AND VISUAL FIELDS

Normal neural pathways of visual signals

Understanding of how one side of retina projects to the opposite side of brain

Interpretation of the location of neural lesions on the basis of visual field defects

### ORBIT

Anatomy of the bony orbit

Main clinical manifestations of orbital disorders, particularly different types of proptosis

Causes, management and significance of orbital cellulitis in children  
Proptosis in dysthyroid eye disease and its potential complications

## VITAMIN A DEFICIENCY

Functions of vitamin A

Brief description of vitamin A and the understanding that it is a very common cause of blindness in Pakistan

Causes of vitamin A deficiency

The reason why vitamin A deficiency causes night blindness – role of pigment epithelium

Other manifestations and complications of vitamin A deficiency

WHO classification of vitamin A deficiency

Prevention and Management of vitamin A deficiency

## REFRACTIVE ERRORS

Normal optics of a healthy eye

How myopia, hypermetropia, astigmatism, aphakia, and presbyopia occur

How to manage myopia, hypermetropia, astigmatism, and presbyopia,  
(general principles)

Advantages and disadvantages of spectacles, contact lenses, and refractive surgery

Basic principles of refractive surgery

## SQUINT

Brief description and function of extra-ocular muscles

Simple classification of squint

Principles of management of concomitant squint

Definition of amblyopia, its causes and principal of management

## TRACHOMA

Definition and pathogenesis of trachoma

Factors that aid in its spread

Different stages of the disease and mechanism of production of blindness

WHO classification

Prevention and management

## LOSS OF VISION

Definition and standards of low vision /Blindness

Different mechanisms of acute and chronic loss of vision

