NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA

FACULTY CURRICULUM

FACULTY OF OPHTHALMOLOGY

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NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA

FACULTY OF OPHTHALMOLOGY

THE CURRICULUM

FOR

FELLOWSHIP RESIDENCY TRAINING AND MD DEGREE IN OPHTHALMOLOGY

2022

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1. INTRODUCTION

THE OPHTHALMOLOGY RESIDENCY Training Programme of the National Postgraduate Medical College of Nigeria aims at graduating ophthalmologists competent to lead the eye care team and for the effective eye health care delivery in Nigeria. The training is conducted in hospitals accredited for this purpose. The training programme is structured to enable a graduated acquisition of more knowledge and advanced skills as the trainee progresses in training.
During the Senior Residency component of the Training, an optional MD Degree with Thesis defence will intercalate for 6 semesters. This will be concluded before the Final Part II Fellowship examinations.

1.1 Admission Requirements.

1. Bachelor of Medicine, Bachelor of Surgery (MB;BS) or its equivalent from a recognized university

2. Full registration with the Medical & Dental Council of Nigeria

3. Evidence of completion of the National Youth Service Corps programme or its exemption

4. A pass in the Primary Fellowship Examinations in Ophthalmology of the National Postgraduate Medical College of Nigeria or its equivalent.

1.2 Training Duration.

The training is for a minimum of 5 years. The first 2 years is the JUNIOR RESIDENCY leading to Part I examinations. The last 3 years is the SENIOR RESIDENCY intercalated with the optional MD degree both including subspecialisation culminating with the MD Degree thesis defense at least 6 months before Part II(Final) examinations.

1.3 Competencies to be Acquired During the Training

The core competencies that must be acquired during the 5-year training include:

a. Patient care with appropriate bedside manners,
b. Medical knowledge of the basic and clinical sciences as applied to ophthalmology
c. Practice-based learning
d. Communication skills
e. Ethics and Professionalism
f. Systems-based practice
g. Surgical skills

1.4 General Education Objectives

The training aims at equipping candidate to be able to

a. Take full history; perform full physical examination including ocular, neurological, neuro-ophthalmic and use of ophthalmic instruments (ophthalmoscopes, contact/non-contact lenses, etc) and to formulate a working diagnosis.

b. Perform and interpret tests relevant to the patient's condition including OCT, OCTA, MRI ultrasound, visual fields, fundus photography, orthoptics, etc.

c. Request for and interpret other relevant laboratory and radiological tests relevant to the patient's condition.

d. Formulate treatment and follow-up plans for the patient in a manner compatible with evidence-based medicine.

e. Recognize, investigate and manage with appropriate specialties, various systemic diseases with ocular involvement including neoplasms

f. Perform surgical procedures for ophthalmic disorders.

g. Communicate clearly with other members of the eye care team as well as patients and the public. This includes ability to teach ophthalmic concepts and procedures.

h. Practice bedside manners consistent with the prevalent ethical principles.

i. Design and conduct epidemiologic and clinical ophthalmic research

j. Design, initiate and see to fruition, blindness prevention activities within the community.

k. Effectively administer eye care program, institution, department or unit of ophthalmology within a health system .

l. Advocate for eye health services.

m. Engage in life long professional development and education.

n. Provide effective leadership and mentoring of the Eye health team.

The residency training seeks to produce comprehensive and sub-specialist Ophthalmologists. For effective and standardized training, a structured training program is advocated (Appendix II) for uniformity in the country.

2. Primary Fellowship Examination

To enter the residency training program the candidate must have sat for and passed the Primary Fellowship Examination or must have earned an exemption from the examination by the College.

2.1 The goal of Primary Fellowship Examination is to ensure that the candidate has adequate and broad knowledge of the basic sciences as applied to ophthalmology. It therefore tests the candidate's knowledge of anatomy, physiology, biochemistry, pharmacology, pathology, microbiology, immunology, and genetics relevant to ophthalmology.
Candidates are advised to read widely from textbooks recommended and to attend a minimum of one revision course before taking the examination. Practice at answering multiple choice questions is also recommended.

2.2 DETAILS OF SYLLABUS FOR THE PRIMARY FELLOWSHIP EXAMINATION [32 CREDIT UNITS]

OPH 901 ANATOMY

ALL TRAINEES MUST understand and apply knowledge of the anatomy of the eye, adnexae, visual pathways and associated aspects of head, neck, and neuro anatomy. It extends to applied anatomy relevant to clinical methods of assessment and investigation relevant to ophthalmic practice. They must be able to use this knowledge when interpreting clinical investigations and in the practice of ophthalmic surgery.

i)The Orbit and adnexae: Osteology, orbital foramina, eyelids, conjunctiva, lacrimal system, extraocular muscles, intraorbital nerves, vessels, orbital fascia
ii)Ocular anatomy: Conjunctiva, cornea, sclera, limbus and anterior chamber angle, iris and pupil, lens and zonule, ciliary body, choroid, retina, vitreous, optic nerve

iii)The Cranial Cavity: Osteology of the skull, meninges, vascular supply, foramina, cranial fossae, pituitary gland and its relations

iv)Central Nervous System: Cerebral hemispheres and cerebellum including microscopic anatomy of visual cortex, cranial nerves, spinal cord, vascular supply, visual pathways, control of eye movement, autonomic regulation of eye.

v)Head, neck and thorax: Nose, mouth, paranasal sinuses, face and scalp, pharynx, soft palate, larynx, trachea, lungs, major arteries and veins, lymphatic drainage of the head and neck
vi)Cardiovascular system: Gross anatomy of the thorax, heart, and major blood vessels. Microscopic anatomy of arteries, veins and capillaries

OPH 902 PHYSIOLOGY

All trainees must understand and apply knowledge of the physiology of the eye, adnexae and nervous system, including related general physiology. This includes the applied physiology relevant to clinical methods of assessment in ophthalmic practice. They must be able to use this knowledge when interpreting clinical symptoms, signs and investigations and in the practice of ophthalmic medicine and surgery.

General principles including:

i)Maintenance of homeostasis: Characteristics of control systems - nervous and hormonal
ii)Body fluids - volume, osmolarity, osmotic and oncotic pressure, and electrolyte (including H+) concentrations

iii)Excitable tissues – nerve and muscle: Structure and function of nerve cell, membrane potential, action potential, nerve conduction, synapse, the motor unit, muscles.

iv)Blood: Plasma composition and functions, cell types, immune mechanisms, blood groups, haemoglobin and red and white cell formation and destruction, anaemias, clotting and fibrinolysis

v)Cardiovascular system: Pressure resistance and flow in blood vessels, blood pressure and blood flow, the activity of the heart and its control, cardiac output, control mechanisms within the CVS, transcapillary exchange, tissue fluid formation

vi)Respiratory system: Structure, lung volumes, composition of respiratory gases, lung mechanics, gas exchange in the lung, carriage of O_2 and CO_2 in blood, ventilation and perfusion relationships, chemical and neural control of ventilation

vii)Nervous system and special senses: Receptors, synapses, afferent pathways, efferent pathways, cerebral cortex, control of movement, hearing, pain and its control, autonomic nervous system, cholinergic transmission, adrenergic transmission

viii)Endocrinology: Hormonal control, hypothalamus, pituitary, thyroid / parathyroid, adrenals, pancreas

ix)Nutrition: Dietary requirements, absorption, vitamins

x)Kidney and adrenal cortex: Glomerular and tubular function, osmolality and pH of body fluids

OPH 903 OCULAR PHYSIOLOGY

i)Physiology of tear production and control and the lacrimal drainage system
ii) Physiology of aqueous production and drainage including principles of intraocular pressure measurement
iii) Physiology and biochemistry of the cornea
iv) Lens metabolism
v) Physiology of the vitreous
vi) Retinal physiology including phototransduction
vii) Retinal pigment epithelium
viii) Choroid
ix) Blood ocular barrier

OPH 904 PHYSIOLOGY OF VISION

i) Visual acuity
ii) Accommodation
iii) Pupillary reflexes
iv) Light detection
v) Dark adaptation
vi) Colour vision
vii) Electrophysiology of the visual system
viii) Visual fields
ix) Contrast sensitivity
x) Eye movements
xi) Stereopsis
xii) Motion detection
xiii) Visual perception
xiv) Magnocellular and parvocellular pathways

OPH 905 BIOCHEMISTRY AND CELL BIOLOGY

All trainees must understand and apply knowledge of the basic biochemistry and cell biology. This includes in particular those aspects relevant to common eye diseases. They must be able to use this knowledge when interpreting clinical symptoms, signs and laboratory investigations and in the practice of ophthalmic medicine and surgery.

i) Biochemistry of the cell: Organelles, plasma membranes, cytoskeleton, nucleus (DNA, RNA), transport mechanisms, cell-cell communications, cell-matrix interactions

ii) Signaling: Growth factors, cytokines, hormones, eicosanoids, receptors, signal transduction, intracellular signaling pathways (e.g. second messengers)

iii) Cellular processes: Cell cycle, protein synthesis (transcription, translation, post-translational modification), nucleic acid synthesis, proliferation, migration, apoptosis, metabolic processes

iv) Connective tissue and extracellular matrix: Extracellular matrix molecules, composition
of ocular extracellular matrices, synthesis/degradation, cell-matrix interactions

v) Biochemical and molecular biological techniques: Examples include: gene cloning, polymerase chain reaction, in-situ hybridization, immuno-localization, ELISA assays, Western, Northern and Southern blotting.

vi) Biochemistry and cell biology of ocular tissues: Cornea, sclera, ciliary body, lens, vitreous, retina, choroid.

vii) Active oxygen species: Free radicals and H_2O, scavengers, lipid peroxidation, phospholipase A

OPH 906 PATHOLOGY

All trainees must understand and apply knowledge of pathology, especially the specialist pathology of the eye, adnexae and visual system. This includes histopathology, microbiology and immunology and other branches of pathology. They must be able to use this knowledge when interpreting clinical symptoms, signs and investigations and in the practice of ophthalmic medicine and surgery.

i) Acute inflammation: Chemical mediators, cellular mechanisms
ii) Wound healing
iii) Chronic inflammation: Types, granulomata, immune mechanisms, ulceration, specific examples
iv) Immunological mechanisms: Types of hypersensitivity reaction,
graft rejection
v) Degenerations: Examples: amyloidosis, calcification
vi) Ageing and atrophy:
Hypertrophy, hyperplasia and metaplasia
vii) Vascular disorders: Atheroma, thrombosis (and homeostatic clotting mechanisms embolism (including pulmonary embolism), ischaemia and infarction, congestion and oedema, angiogenesis, hypertension, aneurysms, diabetic microangiopathy,
shock
viii) Neoplasia: Definition, terminology, concepts; benign and malignant tumours;

carcinogenesis; gene control – including regulation of apoptosis; oncogenes; geographical and environmental factors; pre-neoplastic conditions; effects of irradiation and cytotoxic drugs

OPH 907 BASIC OCULAR PATHOLOGY

With an emphasis on:

i) Cornea endothelial dysfunction and corneal dystrophies
ii) Glaucoma
iii) Cataract
iv) Diabetes
v) Age Related Macular Degeneration
vi) Retinal vascular occlusion
vii) Ocular neoplasia
viii) Retinal detachment and Proliferative Vitreo-retinopathy

OPH 908 MICROBIOLOGY:

i) The biological and clinical behaviours of the microorganisms responsible for infections
ii) Elementary principles of microbial pathogenesis: Concepts of colonisation, invasion, endotoxins, exotoxins, virulence and pathogenicity etc.
iii) Gram staining and classification
iv) Commensal eye flora
v) Viruses: Classification, structure and replication, antiviral agents, laboratory methods of viral detection; viral infections of the eye.
vi) Prions
vii) HIV and AIDS
viii) Fungi: Classification, factors which predispose to fungal infection, antifungal agents.
ix) Toxoplasmosis, Chlamydia, Acanthamoeba, helminthic infections
x) Principles of sterilization: Disinfection and asepsis and the application of these to current
xi) practice and practical procedures
xii) Antimicrobials: Spectrum of activity, mode of action, pharmacokinetics and resistance

OPH 909 IMMUNOLOGY

i) Principles of immunology e.g. non-specific resistance, genetic basis of immunity, cellular and humoral mechanisms
ii) Host defense mechanisms with particular reference to the eye
iii) Mechanisms of immunologically-induced tissue damage with special reference to the eye
iv) Role of soluble mediators (cytokines and chemokines) in regulation of inflammatory responses
v) MHC antigens, antigen presenting cells and antigen processing
vi) Transplantation immunology (with particular reference to the cornea)
vii) Immunodeficiency and immunosuppression
viii) Tissue regulation (with particular reference to the eye) of inflammatory responses)

OPH 910 GROWTH AND SENESCENCE

All trainees must understand and apply knowledge of growth, development and senescence, and the anatomical, physiological and developmental changes which occur during embryogenesis, childhood and ageing relevant to ophthalmic practice. They must be able to use this knowledge when interpreting clinical symptoms, signs and investigations and in the practice of ophthalmic medicine and surgery.

i) Embryology: General embryology especially at early stages; embryology of the eye, orbit, adnexae and visual pathways; the embryological origins of congenital malformations of the eye.

ii) Child development: key milestones in childhood development especially regarding the visual and central nervous systems.

iii) Senescence: the process of ageing and degeneration.

OPH 911 THERAPEUTICS

All trainees must understand and apply knowledge of clinical therapeutics relevant to ophthalmic practice. They must be able to use this knowledge when prescribing for a patient. They must understand the therapeutics used in general medicine and surgery to a basic standard. They must be aware of the possible ocular effects of systemic medications and systemic effects of ocular medications.

OPH 912 PHARMACOLOGY

Pharmacokinetics and pharmacodynamics: General and specific to ocular tissues

i) Drug-receptor interactions

ii) Mechanisms of drug actions (including receptor pharmacology and biochemical pharmacology)

iii) Mechanisms of drug toxicity

iv) Specific classes of pharmacological agents: Examples include catecholaminergics, cholinergics, serotonergics and histaminergics, eicosanoids

v) Pharmacology of drugs used in inflammation and immunosuppression

vi) Pharmacology of drugs used in glaucoma

vii) Local anaesthetics

viii) Analgesics

OPH 913 CLINICAL GENETICS

All trainees must understand and apply knowledge of clinical genetics relevant to ophthalmic practice. They must be able to use this knowledge when advising patients about patterns of inheritance. They must recognise when it is appropriate to refer a patient for genetic counseling. They must recognise when it is important to offer a consultation with family members.

i) Organization of the genome: Genes, chromosomes, regulation of transcription

ii) Mendelian genetics: General principles

iii) Population genetics: General principles

iv) Cytogenetics: Aneuploidy, deletions, translocations, mosaicism, chimerism

v) Genetic basis of eye conditions: Genes involved in ocular disorders or systemic disorders with an ocular phenotype

vi) Investigative and research techniques: Linkage analysis, candidate genes, twin studies, association studies

vii) Gene therapy: General principles

2.3 SUGGESTED READING LIST FOR PRIMARY FELLOWSHIP EXAMINATION

This list is not exhaustive but definitely useful for preparing for the Primary Fellowship Examination.

i) The Eye: Basic Sciences and Practice. Forrester JV, Dick AD, McMenamin P, Lee WR. WB Saunders 2003. ISBN: 0-7020-2541-0

ii) MCQ companion to the Eye. Basic Sciences in Practice. Galloway PH, Forrester JV, Dick AD, Lee WR. WB Saunders 2001. ISBN: 0702025666

iii) American Academy of Ophthalmology. Basic and Clinical Science Course. ISBN: 1-56055-570-X

Volume 1. Update on general medicine.
Volume 2. Fundamentals and principles of ophthalmology
Volume 4. Ophthalmic pathology and intraocular tumours.

iv) Adler's Physiology of the Eye. Ed. Hart WM. Mosby 2003. ISBN: 0-323-01136-5

v) Clinical Anatomy of the Eye. Snell RS, Lemp MA. Blackwell Scientific Publications 1998. ISBN: 063204344X

vi) Clinically orientated anatomy. Moore KL, Dalley AF. Lippincott Williams and Wilkins 2005. ISBN: 0781736390.

vii) Pathology for Surgeons in Training: An A-Z revision text. Gardner DL and Tweedle DEF. Arnold 2002. ISBN: 0340759046

viii) Ocular Pathology, 5th ed. Yanoff M and Fine BS. Mosby 2002. ISBN: 0323014038

ix) Medical Microbiology. Greenwood D, Slack R, Peutherer J. Churchill Livingstone 2002. ISBN 0443070776

x) Medical pharmacology at a glance. Neal MJ. Blackwell Publishing 2002. ISBN: 0632052449

xi) Clinical Ocular Pharmacology. Jaanus SD, Barlett JD. Butterworth-Heinemann 2001. ISBN: 0750670398

xii) Genetics for Ophthalmologists: The molecular genetic basis of ophthalmic disorders. Black GCM. Remedica Publishing 2002. ISBN: 190134620X

xiii) Biochemistry of the eye. Whikehart R. Butterworth-Heinemann 2003. ISBN: 0750671521

3. JUNIOR RESIDENCY

3.1 The 1st and 2nd Year Residency Training (104.5 credit units)

The goals of the first 2 years of junior residency training leading to the Part I examination emphasize

i. recall of information, application of knowledge of basic sciences as well as application of knowledge of pathogenesis and pathophysiology to clinical problems;
ii. interpretation of clinical findings;
iii. formulation of diagnosis and differential diagnoses;
iv. development and implementation of treatment plan;
v. acquisition of surgical skills as well as
vi. anticipation, recognition and treatment of complications.

For the first year of junior residency training the candidate is trained to be able to:

3.1.1 describe the basic principles of optics and refraction (first 6 months to 1 year)

3.1.2 know the indications for as well as prescribe common low vision aids

3.1.3 understand the basic principles and practice of ophthalmic surgery; the trainee is required to become proficient in basic ophthalmic microsurgery within the first 6 months of training.

3.1.4 perform basic anterior and posterior segments ophthalmic exams including refraction, retinoscopy, slit lamp biomicroscopy, indirect ophthalmoscopy, fundus contact and non-contact lens exams with 78D; 90D, Goldmann 3 mirror lens, gonioscopy lenses, IOP measurement; fluorescein staining of cornea.

3.1.5 Understand and use basic ophthalmic instruments including lensometer, tonometer, Maddox wing, Maddox rod, Jackson cross cylinder, ophthalmoscope, retinoscope, phoropter, color vision test charts, etc.

3.1.6 Know how to plot and interpret visual fields.

3.1.7 Triage and treat ocular emergencies including penetrating/non-penetrating ocular trauma, chemical burns, acute angle closure glaucoma, endophthalmitis, panophthalmitis, corneal ulcer, EUA.

3.1.8 Perform minor external and adnexal surgery including chalazion excision, corneal foreign body removal, corneal scrapping, conjunctival biopsy, side laboratory tests.

3.1.9 Understand key exam techniques and management of POAG, Corneal ulcer, dry eye, lid lesion, ptosis, maculopathy, diabetic retinopathy, retinal detachment, optic neuropathy, pupillary abnormalities, ocular motor palsy, etc.

3.1.10 Understand the indications, procedure and complications of cataract, and glaucoma surgeries.

3.1.11 Describe common genetic ocular disorders including retinal and macular dystrophies.

3.1.12 Describe and manage the systemic diseases that affect the eyes.

3.2 Training Kits:

To ensure effective training and acquisition of the necessary technical skills each resident should have a training kit containing the following:

Clinical & Refraction skills-

i) Trial lens box & frame
ii) Direct ophthalmoscope
iii) Indirect ophthalmoscope
iv) Streak retinoscope
v) Contact & non-contact lenses: +20D, +28D, +78D, +90D
vi) Gonio lenses
vii) Magnifying Loupe

Microsurgical skills

i) Corneal forceps
ii) Suture-tying forceps
iii) Needle holders
iv) Spring scissors
v) Practice eyes, e.g., phake

These are to be acquired gradually during the training period from the first training year.

The competencies, skills and knowledge acquired in the 1st year of training are formally assessed as part of Continuous Assessment of the candidate's progress. Areas of weakness are identified, and steps taken to rectify them.

3.3 The Second Year of Junior Residency

The 2nd year of junior residency training will build confidence on the skills and knowledge acquired during the year of training.

The candidate now performs the following:

3.3.1 more difficult and more complex refraction including higher order aberrations, refractive surgery, post-cataract (IOL) surgery, refraction in children; putting contact lenses fitting and use of Placido disk.

3.3.2 use more advanced low vision aids as well as understand and handle the multiple challenges, including social and economic factors facing the low vision patient and his or her family.

3.3.3 more advanced posterior segment exams including depressions; detailed retinal exams with contact/non-contact lens; description and drawing retinal lesions; anterior segments exams including gonioscopy; ultrasound exams (B and A scans).

3.3.4 comprehensive assessment and treatment of strabismus

3.3.5 Diagnosis and treat ocular emergencies as well as also anticipate the short- and long-term complications of these emergencies.

3.3.6 more advance external, adnexal and orbital surgical procedures including ectropion/entropion repair.

3.3.7 Examine and manage confidently secondary glaucoma, fungal and other less common keratitis, corneal transplant, ptosis, simple retinal detachment, mild to moderate proliferative and non-proliferative diabetic retinopathy and laser photocoagulation, myasthenia gravis, optic neuropathy, supranuclear palsy and complex visual field defects. The candidate should attend the neuroophthalmology/neurology course.

3.3.8 Continue to update knowledge and understanding of modern cataract and glaucoma surgical techniques.

3.3.9 Recognize and counsel on ocular genetic disorders including retinitis pigmentosa, neurofibromatosis, angiomatosis retina, retinoblastoma, albinism, etc.

3.3.10 Recognize ophthalmic histopathologic, hematologic and microbiologic laboratory findings.

3.4 Community Ophthalmology postings:

Outreach centres and community services are ways of achieving these objectives. Training centers should therefore embark on such community-based services. The community ophthalmology posting will endure for a total of 1.5 months during the second year of training. At the end of the period the candidate should provide a formal report of the community posting experience to the department which will form part of the candidate's continuous assessment.

3.5 Rotations during junior residency and the credit units

At the end of the Junior Residency training, the resident is expected to have undergone uninterrupted rotations through the following specialties for 24 months:

S/N	Course code	Courses	Duration (months)	Contact academic time (hrs/wk = Total hrs)	Contact Clinical/ Surgical time (hrs/wk = Total hrs)	Credit units
2.1.1	OPH 914	Introductory Ophthalmology- Basic clinical skills,	2	4 (32)	35 (280)	8
2.1.2	OPH 915	Refraction/orthoptic techniques	2	4 (32)	35 (280)	8
2.1.3	OPH 916	Basic surgical skills + Dry/Wet lab	2	4 (32)	35 (280)	8
2.1.4	OPH 917	External diseases/Cornea junior posting	2	4 (32)	35 (280)	8
2.1.5	OPH 918	Cataract/Glaucoma + Visual fields testing	3	4 (48)	35 (420	12
2.1.6	OPH 919	Stepped intraocular surgery	2	4 (32)	35 (280)	8
2.1.7	OPH 920	Neuro-ophthalmology/Oculoplastics junior posting	2	4 (32)	35 (280)	8
2.1.8	OPH 921	Introduction to Community Ophthalmology	2	4 (32)	35 (280)	8
2.1.9	OPH 922	Paediatric ophthalmology junior posting	3	4 (48)	35 (420)	12
2.1.10	OPH 923	Vitreo-retina junior posting	3	4 (48)	35 (420)	12
		TOTAL	23	368	4,140	**92**

NOTE: Figures in parentheses indicate total contact hours

Academic contact hours: 15 hours = 1 credit unit

Clinical Hours: 45 hours = 1 credit unit. 48 weeks are accounted for each year, giving room for annual leave.

3.6 MANDATORY COURSES:
(a) College courses- 1. Advanced Trauma Life Support Course(PMC 901)- 30 hours contact academic time = **2 Credit units**
(b) Faculty Courses-

OPH 924	Optics/Refraction revision course + 3 days hands-on	1 week +3 days	30	22.5	2.5
OPH 925	Clinical ophthalmology Revision course for Junior Residents +3 days hands-on	2 weeks +3 days	30(60)	22.5	4.5
	TOTAL	**3 weeks**	**90**	**45**	**7**

3.6 Minimum surgical experience before the Part I Exam:
Cataract: 50 wet lab cataract, 10 assisted and 40 performed without assistance; Glaucoma: 20 wet lab cases, 5 assisted and 5 performed without assistance; Penetrating eye injuries: 5 performed without assistance and more details as in the logbook.
The supervising consultant ophthalmologist should assess and certify these surgical procedures as and when performed. For this purpose, the candidates should maintain a faculty-approved log-book.
3.7 Credit units for junior residency: are indicated in the table of postings totalling **92 +2 +7 = 101 credit units.**

The conclusion of the 2nd year marks the end of the junior residency training. It should be rounded off with the resident sitting for the Part I Fellowship Examination. A candidate becomes a senior resident (Senior Registrar) when he passes the Part I Fellowship Examination

4 MD DEGREE PROGRAMME (60 Credit Units)

Admission into this MD degree programme is only for medical doctors with MBBS or MBChB degree and are already admitted into residency training programme in Ophthalmology and registered as an associate fellow of the National Postgraduate Medical College of Nigeria and is strictly by:

i. Having passed Primary FMCOph Fellowship Examination or Exemption from Primary Examination of NPMCN
ii. Having passed Part I FMCOph Fellowship Examination of NPMCN
iii. Candidate must be registered as an Associate Fellow of NPMCN
iv. The duration of the MD by course work is minimum of 6 semesters post Part I in an accredited training Institution.
v. Defense for MD thesis will be conducted by examiners in the Faculty of Ophthalmology as appointed by the National Postgraduate Medical College of Nigeria (NPMCN)

4.1 Philosophy

This postgraduate MD programme will be administered by the NPMCN in accredited training institutions. Candidates will focus on the creation of new and innovative knowledge. The MD degree is primarily for individuals with goals in ophthalmology **Research or Teaching**.

The NPMCN Senate oversees the MD degree programmes and its requirements, which entail coursework and independent research. Generally, the programme is for resident doctors undergoing residency training in the Faculty of Ophthalmology, NPMCN and other sister Colleges as approved by the Senate of NPMCN. It consists of course work during residency training in accredited residency training institutions during junior residency training period and first 2 years of senior residency training period in ophthalmology and independent research during the senior residency training period in ophthalmology.

The NPMCN MD degree programme ensures that Residents have a breadth and depth of knowledge in a particular discipline or area and candidate's ability to conduct research is assessed by the preparation of a written thesis.

This will intercalate with the Senior Residency over 6 semesters consisting of College-based courses and Faculty-based courses from 3rd year and completed at least 6 months before the end of Senior Residency. The CREDIT UNITS shall consist of 60 credit units, made up of 30 units deemed obtained from Pre- Part I training and 30 units of post Part 1 courses and thesis defence. The thesis defense will have to be passed at least 6 months before the Part II Fellowship examinations.

The specific competencies to be learnt depends on the subspecialty of interest and the area where the research will be done. Ideally, the research and course lectures attended over 6 semesters should be enough to qualify the candidate for thesis defense by the end of the 4th year.

4.2 MD PROGRAMME COLLEGE COURSE CODES ACROSS FACULTIES

4.2.1 30 credit units are deemed to have been obtained in Faculty based pre-Part1 courses in line with NUC BMAS

4.2.2 Pre- part 1 College Course

- PMC 901 Advanced Trauma Life Support 2 Credit Units

4.2.3 Post Part 1 College Courses

- PMC 951 Research Methodology 2 credit Units
- PMC 952 Health Resources Management 2 credit Units
- PMC 953 Ethics in Clinical Practice 2 credit units

4.2.4 College-based MD Courses

- PMC 994 Medical Education- 2 credit units
- PMC 995 Advanced Research Methodology- 2 credit units
- PMC 996 Advanced Health Resources Management- 2 credit units
- PMC 997 Assessments and Examination Methods- 2 credit units

4.2.5 SYNOPSES OF COLLEGE BASED M.D. COURSES

MEDICAL EDUCATION PMC 994

This course is designed for medical and dental resident doctors. The need for doctors, involved with teaching in the medical school and postgraduate medical training to have training in teaching is widely recognised. The skills in Medical Education course has been designed to meet this need. The course is aimed at resident doctors who are new to teaching and at Fellows with years of experience who would like an update on current best practice and a greater understanding of the basic principles. The course recognises that, with appropriate help, all teachers, even those with considerable experience, can improve their skills in teaching.

The topics to be taught are, standard setting in educational assessment; assessment of clinical skills; threshold concepts in medical statistics and evidence-based practice; numeracy issues in learning about research; mapping and revising the learning and teaching of research; e-learning and blended in medical education; problem based learning; programme development; educational; computer communication networks; community-institutional relations; reproducibility of result; patient simulation; databases, factual; clinical decision making; selection of medical students.

ADVANCED RESEARCH METHODOLOGY PMC 995

OBJECTIVE

To facilitate acquisition of basic knowledge and necessary skills for research in Medicine and Proposal/Dissertation writing.

COURSE CONTENT

Definition, Spectrum and Types of Health Research Design; defining Research problems; Setting Objectives; Statistics and Research ;Methods; writing Research Proposals; (Planning, Protocol Development and Report Writing);Good Clinical Practices and Clinical Trials; Role of Computer in Medical Research (EPI Info and SPSS)

Literature review; Use of Physical and Virtual Library; Use of Internet; Search Engines; Systematic Reviews and Meta-analysis; Ethical considerations in medical research.

Clinical Governance; Writing –Up; presentation and Defense of Dissertation

Faculty Based Group Discussion on Research Proposal (Practical Group Session);

Evidence Based Health Care; Statistical Methods (Summary, Inferences and Interpretation); Basic Principles and Method of Writing Papers for Publications

Practical Sessions on Processing of Proposal and Presentation to the College.

ADVANCED HEALTH RESOURCES MANAGEMENT PMC 996

OBJECTIVE

To facilitate acquisition of knowledge and necessary skills required for management of health resources in institutions and for programme

COURSE CONTENT

Principles and application of Management; Strategic Management; Health Care Planning; Health Policy formulation and evaluation; Health Resources mobilization; Health Resources allocation; Human Resources Management; Organization; Monitoring and Evaluation of Health Services; Performance Management; Sustainable Development; Problem Solving and Decision Making skills; Emotional Intelligence; Leadership; Management of Change; Risk Management
Legal Aspect of Medical Practice; Financial Management; Material Resources Management; Quality assurance in health and equity in health; Public/Private Partnership; Case studies/Scenarios.

ASSESSMENT AND EXAMINATION METHODS PMC 997

1. Multiple Choice Questions and Objective Tests;
2. Oral Examinations;
3. Patient Management Problems;
4. The Long Clinical Case; The Objective Structured Long Examination Record (OSLER),
5. The Short Clinical Case; Objective Structured Clinical Examination (OSCE);
6. Objective Structured Practical Examination (OSPE);
7. Objective Structured Picture Examination (Ospice);
8. Workplace -Based Assessment;
9. Mini-CEX (Mini-Clinical Evaluation Exercise);
10. Direct Observation Of Procedural Skill (Dops) And
11. Multi-Source Feedback (MSF);

RESOURCES

Simulated Patients; Observed Clinical Situations; Ensuring safe and effective patient care through training; Establishing and maintaining an environment for learning; Teaching and facilitating learning; Enhancing learning through assessment; Supporting and monitoring educational progress; Guiding personal and professional development; Continuing professional development as an educator; use of standardized patient (SP) encounters; Data gathering technique (history and physical examination); Interpersonal communication; Clinical management (diagnostic strategy and treatment plan); Professional documentation (post encounter note or PEN); Checklists; Patient Simulators.

4.3 FACULTY OF OPHTHALMOLOGY MD PROGRAMME COURSE CODES

Any ONE of the following:

- OPH 941 Advanced Paediatric Ophthalmology 2 credit units
- OPH 942 Advanced Neuro – Ophthalmology / Oculoplastics 2 credit units
- OPH 943 Advanced Vitreo-Retinal Disorders 2 credit units
- OPH 944 Advanced Cataract / Glaucoma 2 credit units
- OPH 945 Advanced Community Ophthalmology 2 credit units

Compulsory for all:

- **OPH 998 Seminars 6 credit units**
- **OPH 999 Thesis/ Dissertation 12 credit units**

5.1 SYNOPSES OF FACULTY BASED COURSES

OPH 941-Advanced Principles of Paediatric Ophthalmology -2 CREDIT UNITS

Course Description

The courses introduces the students to Advanced Paediatric Ophthalmology & Strabismus. It aims to enable them to acquireknowledge and necessary skills required to function effectively as teachersand researchers in Paediatric Ophthalmology & Strabismus upon completion of the course. Topics include anatomy and physiology of the eye, vision assessment in children, common childhood eye disorders, childhood blindness and strabismus.

Expected Competencies:

1. To be able to describe the anatomical and physiological differencesbetween Paediatric eye and adult eyes
2. To understand the pathophysiology, assessment and managementprinciples of common childhood eye disorders
3. To describe epidemiology of childhood visual impairment andblindness and the principles of their detection
4. To be able to interpret and conduct appropriate research for child eyehealth

Course Title:

1. Visual development and visual assessment of the paediatric patient,
2. Anatomy and physiology of strabismus,
3. Sensory adaptations for binocular vision,
4. Pseudostrabismus,
5. Amblyopia,
6. Strabismus-types and syndromes,
7. Childhood nystagmus,
8. Retinopathy of prematurity,
9. Pediatric cataracts,
10. Child abuse care,

11. Hereditary and congenital ocular motility or lid syndromes,
12. Retinoblastoma,
13. Dyslexia,
14. Childhood blindness and vision loss,
15. Congenital ocular anomalies,
16. Ocular findings in chromosomal abnormalities

Course Contents

1. Anatomy and physiology of the eye Embryology of the eye, bony orbit and adnexae, Gross anatomy and histology of the eye, Ocular Physiology
2. Visual assessment of the paediatric patientVision milestones, Domain of visual function Types of visual acuity materials, Age appropriate visual acuity assessment
3. Binocular vision Binocular single Vision Simultaneous perceptionFusion, Stereopsis Assessment
4. Strabismus-types and syndromes, PseudostrabismusAnatomy for Strabismus & Ocular motility, Comitant strabismus Incomitant strabismusHorizontal deviations Vertical deviations Pattern strabismus, Selected strabismus syndromes, Strabismus assessment tools : sensory and motor testings
5. Amblyopia, Refractive (anisometropic and isoametropic)Strabismic, Stimulus Deprivation, Reverse, Amblyopia studiesTreatment strategies
6. Childhood nystagmusPathophysiology Types of Nystagmus, Assessment of Nystagmus
7. Paediatric cataracts Embryology of the lens, Morphology of Paediatric CataractAetiology Surgical PrinciplesOptical corrections, Follow up
8. Paediatric Glaucoma Development of the Angle, Classification of Paediatric Glaucoma Paediatric Tonometry, Management of Paediatric GlaucomaReview of Management outcome
9. Optic nerve hypoplasia, symptoms/signs, causes, related disorders
10. Paediatric Ocular InjuryChild abuse, Blunt trauma Penetrating injury, Trauma to ocular adnexae Mechanism of paediatric ocular injury
11. Paediatric Retinal diseases, Leucocoria, Retinopathy of Prematurity, Rod-Cone Dystrophy Sickle cell retinopathy
12. Retinoblastoma, Epidemiology of Retinoblastoma, Presentation, Pathological features Genetics of retinoblastoma, Management principles, Intraocular retinoblastoma, Orbital retinoblastoma, Metastatic disease, Palliative therapy
13. Learning Disorder: Dyslexia, autism, the child with special needs
14. Ocular findings in Syndromes/ chromosomal abnormalities, Marfans, Downs syndrome, Ocular albinism, Inheritance, types, signs, related disorders
15. Paediatric Low Vision, Aetiology, evaluation, training in use of low vision devices, Rehabilitation principles
16. Childhood blindness, Epidemiology of Childhood blindness, Causes of visual loss (anatomical and aetiological classification), Prevention of childhood blindness, Early detection strategies- preschool, school age strategies

Teaching Methods:

Didactic Lectures, Seminars, Assignments, Journal reviews, Review ofdatabases, clinical case discussions, hands on sessions

Resources:
Internet resources, Videos, Online and hardcopy Journals, Databases
Webinar libraries from NIPOSS, Cybersight, WSPOS , IAPBand WHO data bases
Data from health facilities, oncology databases eg Retinoblastoma registers, national data from Min of Health, Social welfare, women affairs,Nig Disability Commission, Nig prevention of Blindness committee etc

Assessment methods

These could include practical sessions, assignments and pre and post tests. A final examination will be administered at the end of the course.

OPH 942- Advanced Neuro-ophthalmology/Oculoplastics -2 CREDIT UNITS

Course description

Neuro-Ophthalmology is designed to facilitate competence in the neuro-ophthalmic examination, diagnosis and management of neuro-ophthalmic conditions. To diagnose and manage neuro-ophthalmic manifestations from neurologic, ophthalmic, and systemic disease processes. The objectives of oculoplastics include advanced knowledge of orbital, eyelids and ocular adnexal diseases with an overview of the embryology and anatomy of the orbital structures, in-depth study of presentation and manifestation of some oculoplastics disorders and relevant investigative and diagnostic approach to oculoplasty.

Expected competencies

1. To understand the neuroanatomy of the visual pathway, pupillary and accommodative pathway and relate them to neuro-ophthalmic disorders, and understand ocular motility disorders.
2. Be able to evaluate and manage most common optic neuropathies, common ocular motor neuropathies, efferent pupillary abnormalities, neuro-ophthalmic visual field defects, ocular myasthenia gravis, and congenital optic nerve abnormalities
3. Know the indications for particular neuroimaging studies – CT, MRI etc.
4. Take a proper and well detailed history from the neuro-ophthalmic patient
5. To be able to describe in details embryological basis of some ocular conditions, and the genetic basis of some congenital ocular conditions related to oculoplasty
6. To have an in-depth knowledge of the immunological basics of some ocular conditions including thyroid eye disease and facial dystonia
7. To be able to conduct research on relevant/important oculoplasty conditions as they relate to our local setting/environment
8. To understand the presentation and be able to characterize various orbital tumors
9. To be able to discuss relevant radio-imaging specific to oculoplasty conditions

Course title

1. Neuro-anatomy of the cranial nerves and visual pathways

2. Neuro-anatomy of pupillary and accommodative reflexes
3. Radio-imaging, congenital optic nerve disorders
4. Ocular motility and related neuronal pathways
5. Optic neuropathies
6. Ocular motor neuropathies (eg., third, fourth, sixth nerve palsy)
7. Intracranial syndromes (eg., infectious, vascular, neoplastic, inflammatory etiologies)
8. Visual field defects (eg., optic nerve, optic chiasm, optic radiation, occipital cortex)
9. Neuro-muscular disorders- myasthenia gravis
10. Optic nerve head swellings
11. Intracranial space occupying disease
12. Phacomatoses
13. Advanced eyelid, lacrimal, and orbital anatomy and physiology (eg., lacrimal apparatus, orbital vascular anatomy)
14. Genetics of congenital eyelid deformities
15. Congenital orbital deformities
16. Genetics of craniosynostoses
17. Nasolacrimal system in health and disease,
18. Thyroid ophthalmopathy
19. Inflammatory pseudotumor
20. Blepharospasm or hemifacial spasm
21. Orbital tumors
22. Imaging for oculoplasty

Course content

1. Neuro-Anatomy of the Cranial Nerves and Visual Pathways -Describe the organization of cranial nerves 2-8 with respect to their nuclei within the brain, and their functional roles. Describe the visual pathway from the retina to the brain (afferent visual pathways - optic nerve, chiasm, tract, to visual cortex, and efferent visual pathways (cortical input, vestibular pathways, nuclear centers, ocular motor nerves, and extraocular muscles).

2. **Neuro-Anatomy of Pupillary and Accommodative Reflexes -**Pupillary light reflex pathway – retina to the pupil. Afferent arc (retinal receptors, ganglion cells, Edinger-Westphal subnucleus to the iris). The efferent arc (oculomotor nerve and the short ciliary nerves). Pupillary function – an involuntary reflex. The accommodation reflex - afferent - primary visual pathway; efferent pathway – from visual cortex (area 19).

3. Ocular Motility and Related Neuronal Pathways -Describe the 6 *extraocular muscles* (medial rectus, superior rectus, inferior rectus, lateral rectus, superior oblique and inferior oblique) that execute eye movements and t*he nerve supply (abducens, oculomotor and trochlear). Describe* their actions eg adduction, abduction, elevation, depression etc. Describe supranuclear control of eye movements. Describe the vestibulo-ocular and optokinetic systems. Describe smooth pursuit, saccades, and vergences. Describe the **vertical gaze and horizontal gaze centers.**

4. **Radio-Imaging, Congenital Optic Nerve Disorders-Neuroimaging:** Define neuroimaging? Describe indications for neuroimaging studies, including computerized

tomography (CT) scanning, magnetic resonance imaging (MRI), orbital ultrasonography, and catheter angiography. Recognize common pathologic findings of brain and orbits on CT and MRI related to neuro-ophthalmology. Describe the interpretation of neuro-radiologic images (eg, indications and interpretation of orbital and intracranial tumors). **Congenital Optic Nerve Disorders:** Describe congenital optic nerve disorders – causes and types eg optic nerve hypoplasia, excavated optic disc anomalies (Morning glory disc anomaly), optic disc coloboma, retinal coloboma syndrome optic pit, tilted disc and congenital tilted disc syndrome, congenital optic disc pigmentation, myelinated nerve fibers, pseudo-papilledema etc. Describe systemic associations and their impact on vision.

5. **Optic Neuropathies-**Describe the typical features, evaluation, and management of the most common optic neuropathies (eg., infectious, demyelinating, ischemic, inflammatory, hereditary, etc). Types of diagnostic testing, determine etiologies. Describe types of optic neuropathies eg congenital disc anomalies, hereditary optic, inflammatory optic neuropathies infectious optic neuropathies, ischemic, etc. Systemic evaluation of patients.

6. **Ocular Motor Neuropathies (Eg., Third, Fourth, Sixth Nerve Palsy)-**Describe the typical features, evaluation, and management of the most common ocular motor neuropathies (eg, third, fourth, sixth nerve palsy) – presentation and common causes of these palsies. Describe the typical features of cavernous sinus syndrome and superior orbital fissure syndrome. Describe the clinical features for each, causes, diagnostic evaluation, course, and management. List the common causes of an acute versus chronic isolated ocular motor neuropathy and define general management of each.

7. **Intracranial Syndromes (Eg., Infectious, Vascular, Neoplastic, Inflammatory Etiologies)-**Describe common intracranial syndromes be it infectious, vascular, neoplastic or inflammatory. Differentiate based on clinical features and ancillary tests. Describe relevant investigations. Describe some common intracranial infections eg., meningitis, vascular lesions eg., aneurysms; neoplastic lesions (primary or metastatic) etc; and inflammatory /demyelinating disorders eg., multiple sclerosis.

8. **Visual Field Defects (Eg., Optic Nerve, Optic Chiasm, Optic Radiation, Occipital Cortex)-**List the indications for visual field testing and interpret standard clinical perimetry programs. Describe the indications for basic and automated kinetic perimetry and interpret results. Describe complete cranial nerve evaluation in the context of neuro-ophthalmic localization and diseases. Describe features and evaluation of the less commonly encountered visual field defects. Describe the advantages, disadvantages, indications, and pitfalls in special perimetric methods (eg, blue-yellow perimetry).

9. **Neuro-Muscular Disorders- Myasthenia Gravis-**Define myasthenia gravis. Describe normal neuromuscular transmission and impaired transmission in MG. List the causes/etiologies. Describe the clinical features and evaluation of ocular myasthenia gravis. Describe the workup - Laboratory tests, radiography, CT and MRI; electrodiagnostic studies, pharmacologic testing, ice park test. Indications and procedure for intravenous edrophonium. Treatment of MG. Differential diagnosis of myasthenia gravis.

10. Optic Nerve Head Swellings-Describe the different types of optic nerve head swellings. Distinguish between papilledema and other causes of disc edema. Describe the mechanism of

disc edema. Describe the typical and atypical features, evaluation, and management of papilledema and raised intracranial pressure due to a variety of causes. Describe the clinical features, investigations (FA, OCT etc), associated visual field defects and management of disc edema.

11. **Intracranial Space Occupying Disease (ISOL)-**Describe intracranial space-occupying lesions. Causes eg., primary tumors, metastatic lesions, cerebral abscess, hematoma, tuberculoma etc. Differentiate ISOL from other diseases. Clinical features and diagnosis (CT and MRI, Blood tests, X-Ray etc), Treatment (Medical therapy and surgical therapy).

12. **Phacomatoses:** Define phacomatoses. Common types of phacomatoses and systemic associations. Describe the clinical features, evaluation (including imaging studies) and management**.**

13. **Advanced eyelid, lacrimal, and orbital anatomy and physiology (eg., lacrimal apparatus, orbital vascular anatomy)-**Advanced eyelid, lacrimal, and orbital anatomy and physiology: Development of the eye with emphasis of the orbit, eyelids and conjunctiva. Anatomy of the bony orbit, orbital soft tissue, lacrimal gland and drainage apparatus. Tear film composition. Physiology of tear secretion and drainage. Lacrimal pump function. The blinking reflex.

14. Genetics of congenital eyelid deformities: Genetic basis of cranio-orbital deformations. The structure of DNA and DNA replication. Mutations in gene expression. DNA processing, translation. Chromosomal anomalies. Autosomal anomalies. Molecular cyto-genetics.

15. **Congenital orbital deformities** - Aetiology of congenital eyelids deformities including coloboma, ptosis, entopion. Inheritance pattern and associated syndromes. Classification and manifestation. Applied management principles

16. **Genetics of craniosynostoses**,: Genetic basis of cranio-orbital deformation and syndromes. The structure of DNA and DNA replication. Mutations in gene expression. DNA processing, translation. Chromosomal anomalies. Autosomal anomalies. Molecular cyto-genetics.

17. Nasolacrimal system in health and disease: Disorders of lacrimal drainage system - epiphora/reflex tearing. Causes, presentation and management of punctual atresia/stenosis, canalicular obstruction, nasolacrimal duct obstruction. Lacrimal pump failure. Syringing and probing

18. **Thyroid ophthalmopathy -** Etiopathogenesis of thyroid ophthalmopathy. Role of autoantibodies, immunoglobulins, cytokines and other cells. Presentation and management thyroid ophthalmopathy

19. **Inflammatory pseudotumor -** Inflammatory pseudotumor: Characterization from orbital tumors. Aetiopathogenesis. Histopathological features and management on NSOID

20. **Blepharospasm or hemifacial spasm -** Blepharospasm and hemifacial spasm: Aetiopathogenesis of focal dystonia. Associations of BEB. Presentations of various dystonia. Pharmacotherapy and surgical treatment modalities

21. **Orbital tumors -** Presentation and management of different tumors in ocular oncology: Orbital tumours in black population. Lymphoid malignancies. Burkitt's lymphoma. Hodgkin's lymphoma. Leukaemias. Orbital retinoblastoma. Neuroblastoma. Rhabdomyosarcoma. Kaposi Sarcoma. Bone Sarcoma

22. **Imaging for oculoplasty -** Imaging for oculoplasty: Basic radiology, principles of ultrasound, CT scanning and MRI. Basic and applied radiation oncology

Teaching Methods:

This will include didactic lectures, seminars, case studies, assignments and practical sessions.

Resources:

Computers and internet access, Journal articles, Research materials from the ICO and American Academy of Ophthalmology.

Assessment Methods:

Assignments, Formative assessment, Summative assessment, Thesis presentation and defense

OPH 943-Advanced Vitreo-retina disorders-2 CREDIT UNIT

Course description

The course introduces the students to advanced vitreo retinal disorders. It covers retinal anatomy and physiology, Angiography as applied to retinal vascular disease, Retinal detachment, Vitreo-macular disease, Lasers and application, Traumatic post segment disease, Degenerative post segment disease, Inherited post segment disease, Retinal imaging.

Expected competences

1. To be able to describe the retinal anatomy and physiology and their applications in clinical practice.
2. To understand the principles, applications, and interpretation of retinal angiography in retinal vascular diseases
3. To understand the pathogenesis of various types of retinal detachment and principles of management of each type.
4. To be able to describe the vitreomacular interface and associated diseases, and understand the principles of management.
5. To be able to understand the principles of laser treatment and application in retinal diseases.
6. To understand the mechanisms of posterior segment trauma and principles of management.
7. To understand the pathogenesis of degenerative posterior segment diseases, and the principles of management.
8. To understand the pathogenesis of congenital/ inherited) posterior segment diseases and the principles of management.
9. To understand the principles of retinal imaging, electrophysiology studies, applications, and interpretations.

Course titles

1. Retinal Anatomy and Physiology
2. Retinal Angiography in retinal vascular diseases
3. Retinal detachment
4. Vitreo-macular diseases
5. Lasers and its application in retinal diseases
6. Traumatic posterior segment diseases
7. Degenerative posterior segment diseases
8. Inherited posterior segment diseases
9. Retinal Imaging

Course content

1. Retinal Anatomy and Physiology: Embryology of the retina, Gross anatomy and microscopic/histology of the retina layers, visual pathway, physiology of vision
2. Retinal angiography: principles. Dyes, equipment, procedure, preparation, contraindications, complications; applications in diabetic retinopathy, retinal vascular occlusions and diseases; interpretations.
3. Retinal detachment: types, pathogenesis, precursors, principles of management- Rhegma; identification of breaks, sealing with cryo and laser, buckles, vitrectomy, gas tamponade, complications of surgery. Tractional, Exudative and combined mechanism retinal detachment.
4. Vitreomacular interface and diseases: anatomy of the interface, OCT imaging, vitreo macular traction; macular holes, principles of management
5. Lasers: types, green, yellow, red lasers; principles of use and applications of laser; indications, contraindications; complications.
6. Posterior segment trauma: blunt (close versus open globe); commotio, retina tears, intraocular foreign bodies, vitreous hemorrhage, retinal detachment, endophthalmitis; principles of management.
7. Degenerative posterior segment disease: Pathologic myopia, Age related macular degeneration, polypoidal vasculopathy and principles of management.
8. Inherited/ congenital posterior segment disease: stargardts, retinitis pigmentosa, dystrophies; and principles of management.
9. Retina imaging: Fundus photography, autofluorescence, Flourescein and Indocyanin angiography, OCT Scan, OCT angiography, A and B ultrasound Scan, Electrophysiology studies, setting up and usage; Telemedicine. Merits and demerits of the various imaging systems.

Teaching methods

a. Lectures, seminars, power point, online teaching, tutorials, case based discussions

Resources

a. Computers with internet connection
b. Journals
c. Online Databases

d. Teaching Videos
e. AAO , ONE Network

Assessment methods

a. Formative: class exercises, assignments
b. Summative: Examination, projects.

OPH 944-Advanced Cataract/Glaucoma - 2 CREDIT UNITS

Course Description

This course aims to impart both basic and advanced skills in cataract and glaucoma management. It teaches the aetiologies, classifications, evaluations, and management with emphasis on complicated cases as well as surgery related complications. The principles and ethical decision-making process in management and good patient communication techniques are also taught.

Expected Competences

1. To perform the complete preoperative ophthalmologic examination of cataract and glaucoma patients, including the consent for procedures. Comprehensive medical management of the glaucoma patient.
2. To be able to describe the epidemiology, clinical features, evaluation, diagnosis, differential diagnosis, and management of intraoperative and postoperative complications of cataract and glaucoma surgeries, including planned extracapsular extraction (ECCE), phacoemulsification, trabeculectomy and glaucoma drainage devises.
3. To understand and manage advanced cataract and glaucoma surgeries, including intraoperative and postoperative complications.
4. To develop and exercise clinical and ethical decision making in cataract and glaucoma patients, as well as develop good patient communication techniques.

Course title

1. Indications, evaluation and management, and intra and post-operative complications of Cataract surgery and other anterior segment procedures.
2. Differential diagnoses of cataract and evaluate the normal and abnormal lens.
3. Refraction of the post-cataract surgery patient.
4. Ethical decision-making in cataract patients.
5. Communication techniques regarding cataract surgery.
6. Advanced cataract surgery and intraocular lens (IOL) placement.
7. Advanced clinical and surgical cataract problems.
8. Anterior segment imaging.
9. Mechanics of aqueous humor dynamics and the anatomy of the anterior chamber and angle.
10. The epidemiology of glaucoma.

11. Evaluation of Glaucoma.
12. Tonometry and principles of tonography .
13. Optic nerve and nerve fiber layer anatomy in glaucoma.
14. Perimetry, including kinetic and automated static perimetry.
15. Gonioscopy
16. Medical management of glaucoma.
17. Major clinical trials in glaucoma (e.g. Glaucoma Laser Trial, Normal Tension Glaucoma, Study, and Advanced Glaucoma Intervention Study.
18. Glaucoma imaging.

Course Content

This course covers the following;

1. Indications, evaluation and management and intra-and post- operative complications of cataract surgery, other anterior segment procedures etiology and classification of cataract, indications for treatment, signs of a complicated cataract, detailed surgical cataract procedures, advantages and disadvantages of each (MSICS, PHACO), management of complications of cataract and IOL implant surgery (e.g. posterior capsular tears, vitreous prolapse, intravitreal dislocation of cataractous fragments, corneal wound burn, expulsive hemorrhage, choroidal effusions, damage to the iris tissue, TASS, endophthalmitis).
2. Differential diagnosis of cataract and evaluation of normal and abnormal lens etiology of ectopia lentis and its management. Differentials of cataract and their management.
3. Refraction of the post cataract surgery patient – Pseudophakic and aphakic refraction/optical correction. WHO visual outcome measurement. Indication and option for astigmatism management during cataract surgery (eg, on axis incision, limbal relaxing incisions [LRI], opposite clear corneal incision [OCCI], toric IOL). Options for presbyopic correction solutions during cataract surgery (e.g., monovision. multifocal IOLs, accommodative IOLs, dual optic IOLs).
4. Ethical decision making in cataract patient – Develop and exercise clinical ethical decision making in cataract patients. Determine a treatment plan that is appropriate for the type of cataract/ lens condition and the patient needs. Deliver on such a plan/surgery with a high level of competency, using procedures that are most appropriate for the condition and patient needs.
5. Communication techniques regarding cataract surgery – Good patient communication technique regarding the disease details, choice of intervention, possible outcomes and complications with the aim of obtaining an informed, written consent for the procedure. IOL design and cost. Government and hospital regulations that apply to cataract surgery. Use of trained cataract counselors.
6. Advanced cataract surgery and intraocular lens (IOL) placement – IOL fixation options in the lack of capsular support for in the bag fixation (anterior chamber [AC] IOL, sulcus fixation +/- optic capture, iris fixation, scleral fixation). Instrumentation and techniques used to implant foldable and non-foldable IOLs. Describe the causes and indication for performing, repositioning,

removal, or exchange of IOLs. Evaluation and management of IOL complications (eg, intraoperative damage to IOL, postoperative IOL opacification, dislocation, sublocation).

7. Advanced clinical and surgical cataract problems – Manage cataract in special situations: Traumatic cataracts, small pupils, mature cataract, after filtration surgery, diabetes, uveitis, high myopia, nanophthalmos, pseudoexfoilation, compromised endothelium, keratorefractive surgery, vitrectomized eye, and in floppy iris syndrome. Use of special devices for cataract surgery in complex situations such as specialized IOLs, capsular tension rings and segments, iris hooks, Malyugin ring, use of indocyanine green/trypan blue staining of the anterior capsule.

8. Anterior segment imaging – Immersion and contact methods of A-scan, as well as manual and automated keratometers, the IOL Master and the use of various formulae to calculate the appropriate IOL power. Use of B –Scan, use of corneal topography and wavefront analysis to help select the best type of IOL for a patient especially following keratorefractive surgery.

9. Mechanics of aqueous humor dynamics and the anatomy of the anterior chamber and angle – Embryology and Anatomy of anterior chamber angle, Physiology of Aqueous production and composition, Aqueous outflow, trabecular and uveoscleral outflow, other pathways of aqueous outflow, factors affecting aqueous production and outflow, measurement of aqueous production and outflow facility, episcleral venous pressure.

10. The epidemiology of glaucoma – Epidemiology of primary open angle glaucoma (Nigeria, Africa, World), epidemiology of Angle closure glaucoma, Epidemiology of childhood glaucomas, Magnitude of glaucoma blindness, Epidemiology of other glaucoma types.

11. Evaluation of Glaucoma – Detailed history and examination of the glaucoma patient, plus slit lamp bio-microscopy, Classification and staging of glaucomas, Glaucoma blindness prevention strategies, Risk assessment of glaucoma, Target pressure, direct and indirect gonioscopy, introduction to secondary glaucomas.

12. Tonometry and principles of tonography – Association between intra-ocular pressure (IOP) and glaucoma, measurements of IOP, Determinants and factors affecting IOP, Infection control in tonometry, Measurements of facility of outflow (Tonography).

13. Optic nerve and nerve fiber layer anatomy in glaucoma – Anatomy of the optic nerve and nerve fibre layer, Blood supply of the optic nerve, Optic disc and nerve fibre changes in glaucoma

14. Perimetry, including kinetic and automated static perimetry – Kinetic and Automated static perimetry in glaucoma including Humphrey perimeter, Glaucomatous visual field loss, Interpreting a visual field print-out, Factors affecting perimetry results, Analysis of visual field progression, Microperimetry, frequency-doubling technology (FDT), short-wavelength automated perimetry (SWAP)

15. Gonioscopy – Direct and indirect gonioscopy, Gonioscopic grading systems, Gonioscopic assessment and abnormal angle structures, UBM gonioscopy

16. Medical management of glaucoma – General principles of medical management of glaucoma, Target pressure, Anti-glaucoma agents + New topical medications (types, mechanism of action, uses, side effects), Fixed dose combinations, Medical treatment in children and pregnancy.

17. Major clinical trials in glaucoma; Key objectives, conclusion and clinical relevance – Ocular Hypertension Treatment Study, Collaborative Initial Glaucoma Treatment Study, Glaucoma Laser Trial, Normal Tension Glaucoma Study, Advanced Glaucoma Intervention Study, Tube vs. Trabeculectomy Study, AVB: Ahmed Versus Baerveldt Study, LiGHT: Laser in Glaucoma and ocular Hypertension study.

18. Glaucoma imaging – Optical coherence tomography, Anterior segment imaging in glaucoma, Anterior segment optical coherence tomography, Ultrasound biomicroscopy (UBM), Pachymetry, Confocal scanning laser ophthalmoscopy, Scanning laser polarimetry, ocular blood-flow measurements

Teaching Method

Lectures, seminars presentations, surgery practicals, ward rounds, clinic case study discussions, and assignments.

Resources

- Computers and internet access, • Journals
- Research materials and videos from World Glaucoma Association (WGA), International Council of Ophthalmology, (ICO), International Agency for Prevention of blindness (IAPB), American Academy of Ophthalmology (AAO) and WHO databases.
- Data from health facilities/national data (FMOH & Fed. Min. of Industries Labour and Productivity)
- Ophthalmologic Patients' simulators/ mannequins – Cataract, SICS, phacoemulsification, trabeculectomy, Suturing

Assessment methods

a. Formative: class exercises, assignments
b. Summative: Examination, projects.

OPH 945-Community/Public Health Ophthalmology-2 CREDIT UNITS

Course description

This course introduces the students to more advanced knowledge on the Philosophy and concept of Community eye health (CEH) otherwise referred to as Public health ophthalmology. It covers the epidemiology and the management of eye diseases of public health significance at the population level and the management of human resources for the control of priority eye diseases in a given population. Upon completion, students are expected to be able to determine know the major diseases causing blindness and visual impairment in a given population and recommend strategies for the control of identified priority diseases.

Expected Competencies

At the end of the course, students are expected:
1. To be able to manage people, carry out a needs-assessment in teams. The composition of the team will be dependent on the rationale for the needs assessment, build teams for the control

of eye diseases of public health significance and provide Mentorship to members of the eye care team.

2. To be able to discuss the Epidemiology of major blinding eye diseases for a given population e.g. in a defined setting or at the global level.
3. To carry out Programme planning, and management of an eye care programme for a given population including outreach eye care services including School eye health programme
4. To be able to plan, implement and evaluate a sustainable Screening programme for eye diseases. e.g. diabetic retinopathy at the appropriate level of the health system.
5. To understand the World Health Organization's Global Action for Prevention of Blindness (GAP)2014-2019 and the recommendations of the World Report on Vision 2019. understudy Successful eye care models - International and in Nigeria.
6. To be able to plan and implement a service for the Rehabilitation of persons with irreversibly blindness including Low vision (LV) Services
7. To be able to describe the Principles of ethics/ professionalism and legal issues in eye care
8. Understand the Health systems and how eye care can be integrated into the health system for a given population
9. To be able to develop curriculum for the training of all cadres of eye care providers
10. To identify the crucial stakeholders in eyecare and demonstrate the ability to provide Advocacy for eye care , effective communication skills and other leadership Skills
11. Understand the principles and practice of Health Education and Promotion including Social marketing of eye care services
12. Identify the sources of funding for eye care programmes and To be able to mobilize resources for eye care and deploy the resources for the control of blindness
13. To be able to budget, manage Finances and handle assets for the delivery of eye care services for a given population.
14. To understand the basics of Health economics including analysis of Cost effectiveness, cost-benefit, and economic returns
15. To understand Sustainability in the delivery of Cataract surgical Services and other eye care programmes
16. To be able to understand Setting up private enterprise with public interest component
17. To be to Manage Procurement systems including Monitoring and evaluation of a Procurement system.
18. To demonstrate an ability to apply Research methodology skills with Community participation and empowerment including Evidence based researches & practices.
19. To be able to carry out Rapid Assessment of Avoidable Blindness (RAAB).
20. To be able to appraise NTD control and blindness prevention
21. To demonstrate an ability to perform data entry and analysis using a statistical software

Course Title

1. Managing people, Team building and Mentoring skills
2. Global Action for Prevention of Blindness (GAP)
3. Rehabilitation of irreversibly blind and Low vision Services
4. Epidemiology of blindness, Global Blindness and Cataract epidemiology:
5. Principles of ethics/ professionalism and legal issues in eye care

6. Health systems and Organization of eye care services including outreach services and school eye services
7. Resource mobilization for eye care
8. Health economics: Cost effectiveness, benefit, and economic returns
9. Curriculum development
10. Screening for eye diseases
11. Programme planning
12. Finances & assets handling 1. Health care financing mechanisms
13. Needs & Composition of eye care team
14. Sustainability and Mobilization of resources
15. Setting up private enterprise with public
16. Advocacy and communication skills
17. Rehabilitation of irreversibly blind and Low vision Services
18. Principles of Health Education, Promotion and Community participation and empowerment
19. Social marketing of eye care services
20. Needs Assessments- Situational analysis including Equipment and infrastructure assessment
21. Monitoring and evaluation Procurement systems,
22. Evidence based researches & practices
23. Budgeting for eye care
24. Rapid Assessment of Avoidable Blindness.
25. Successful eye care models - International and in Nigeria
26. NTD control and blindness prevention
27. School eye health programme
28. Data entry and analysis

Course Content

This course covers the following:

1. Managing people, Team building and Mentoring skills. 1. Team – definition, benefits, drawbacks 2. Tools to build trust, effective conflict, Achievement, increase accountability and to focus on results. 3. Roles in a group 4. Mentoring.
2. Global Action Plan for Prevention of Blindness (GAP) 1. Vision, goal and purpose of GAP 2. Principles and approaches 3. Objectives and actions. 4. Indicators for GAP
3. Rehabilitation of irreversibly blind and Low vision Services 1. What is rehabilitation? 2. Habilitation, rehabilitation and environment 3. Rehabilitation measures: Rehabilitation medicine, Therapy, assistive devices, etc. 4. Care process for ophthalmologists in vision rehabilitation. 5. Barriers to access
4. Epidemiology of blindness, Global Blindness and Cataract epidemiology: 1. Epidemiology definition. 2. Epidemiological questions about blindness: Disease, Distribution, Determinants (aetiology) and Control 3. Magnitude and trends in magnitude of global blindness 4. Cataract epidemiology
5. Principles of ethics/ professionalism and legal issues in eye care 1. Introduction. To ICO guidelines for ethical principles and professional standards 2. Standards: Patents care, professional practice, professional community, standards for work with other health care professionals, research

standards, commercial, teaching and mentorship, and standards governing the relationship to the medical industry

6. Health systems and Organization of eye care services including outreach services and school eye services 1. What is a health system? 2. Eye care in the context of health systems 3. Building blocks of a health system and the place of eye care 4. Health system strengthening. 5. Organizing an outreach service in a health system

7. Resource mobilization for eye care 1. Why resources: developmental and service delivery activities 2. Avenues for resource mobilization 3. Resource mobilization framework

8. Health economics: Cost effectiveness, benefit, and economic returns 1. Introduction 2. Types of health economic analysis: cost-minimization; cost-benefit; cost effectiveness; and cost-utility analyses 3. What is important in economic analysis?

9. Curriculum development – 1. Introduction to curriculum development: 'SPICES' Model 2. Curriculum development process: Describing the job; Analyzing the tasks; Making a course plan; Learning objectives (from the course plan); setting a timetable

10. Screening for eye diseases 1. Introduction 2. What are screening for? (children, adults) 3. Types of screening tests: observation, sensory, computer/internet -based acuity testing, objective tests. 4 How should we screen and who should do the screening 5. Public health screening programme: Wilson and Jungner framework 6. Case studies: ROP screening, DR screening, etc

11. Programme planning 1. Introduction to planning: basic concepts, organizing a planning meeting. 2. Situational analysis 3. Setting priorities and objectives (What we want to achieve) 3. Programme Implementation and Management.

12. Finances & assets handling

13. Needs & Composition of eye care team 1. Community structure: need, community structure and service structure 2. Composition of eye care team: ophthalmologists, community ophthalmologists, technologists, ophthalmic nurse, ophthalmic technicians, refractionists, medical officer, CHWs, CBRWs 3. Levels of care 4. Team concept, team spirit, membership and leadership. 5. Team training and its impact

14. Sustainability and Mobilization of resources 1. Introduction – definition 2. Framework for sustainability 3. Guiding principles for sustainability 4. Financial sustainability: cost containment, cost reduction, cost recovery and cost sharing. Financial viability: cost containment, revenue generation

15. Setting up private enterprise with public sector 1. Background to public private partnership (PPP): definition, benefits, types of risk and their allocation, types of PPP 2. International trends in PPP: theory and practice 3. PPP framework 4. Constraints to infrastructure PPPs in developing countries 5 Initiatives to support infrastructure PPPs 6. Key lessons and emerging best practices in the Commonwealth

16. Advocacy and communication skills 1. Advocacy: definition, principles, advocacy strategy and examples. 2. Effective communication skills: active listening, verbal communication and encouragement, appropriate questioning, clarification and paraphrasing

17. Rehabilitation of irreversibly blind and Low vision Services . 1. Rehabilitation of children with blindness and low vision 2. Rehabilitation of adults with blindness and low vision

18. Principles of Health Education, Promotion and Community participation and empowerment 1. Health promotion (HP): definitions, PHC – a new beginning (1978), Ottawa Charter 1986, Global conferences on HP, HP packages: GOBIFFF, MDGs, SDGs, 2. Health education (HE): definitions, Barnett's classification of HE, 3. HE packages: Facts for life, etc. 3.

Community participation (CP): why CP in HP?, Approaches to community participation – community-supportive and community-oppressive. 4. Take home messages in HP, HE and CP.

19. Social marketing of eye care services. 1. What is social marketing? 2. Does social marketing works? – A systematic review. 3. Key features of social marketing. 4. The 6Ps of social marketing. 5. Planning a social marketing campaign.

20. Needs Assessments- Situational analysis including Equipment and infrastructure assessment. 1. What is need assessment? 2. Benefits of needs assessment. 3. Phases of need assessment. 4. Tools for conducting needs assessment: (community mapping, pairwise ranking, success ranking, group discussion, seasonal calendars, historical profiles, case studies, problem trees, focus group, questionnaire, semi-structured individual interviews, SWOC analysis, etc.) 5. Steps in understanding the needs of a community

21. Monitoring and evaluation Procurement systems. 1. Definitions: monitoring & evaluation. 2. Benefits/Purpose of evaluation. 3. Types of evaluation: Pre-programme evaluation (input evaluation, relevance evaluation); monitoring (Process evaluation, progress evaluation, on-going evaluation, output evaluation, formative evaluation, efficiency evaluation); impact analysis (outcome evaluation, summative evaluation, impact evaluation, programme review); clinical audit; and management audit. 4. Understanding indicators. 5. Monitoring: purpose, tools for monitoring, how to monitor.

22. Evidence based researches & practices. 1. Definition of evidence-based research (EVR). 2. 2. Why evidence-based research. 3. How to plan an EVR. 4. How to bridge gap between EVR and evidence-based practice. 5. Translating EVR into optimal care with support from institutions and individuals.

23. Budgeting for eye care. 1. Definition of budgeting. 2. What should a budget consider? 3. Developing the budget and types of costs to be included. 4. Matching contribution. 5. Basic accounting: income statement, balance sheet, cash-flow statement. 6. Conclusion.

24. Rapid Assessment of Avoidable Blindness (RAAB). 1. What is RAAB? 2. Advantages of RAAB. 3. RAAB methodology. 4. Results of a RAAB study. 5. Planning services using results of RAAB study. 5. Conclusion

25. Successful eye care models - International and in Nigeria. 1. RAAB in eastern Mediterranean region 2. Gambian eye care programme 3. Public private partnership in Nigeria 4. Tele-ophthalmology 5. Control of childhood blindness in Bangladesh 6. Subsidization of cataract in Latin America Integrated model for providing comprehensive eye care. 7. Conclusion.

26. NTD control and blindness prevention 1. What are the neglected tropical diseases (NTDs)? 2. Which NTDs contribute to global burden of blindness and visual impairment. 3. New strategies adopted to tackle NTDs. 4. How control of NTDs contribute to strengthening the health system and blindness prevention/control.

27. School eye health programme. 1. Why school eye health programme 2. Components of an ideal school eye health programme. 3. Components of a typical school eye programme 4. Evidence in support of school eye health programmes 5. Case studies of school eye health programmes regional and global.

Teaching Method

Lectures, seminars, case study discussion, classroom activities, skill building, assignments and practical exercises.

Resources; Computers, Projector, White board makers, Journals, Research materials from WHO and ILO databases, Data from health facilities/national data (FMOH & Fed. Min. of Industries Labour and Productivity), Other Internet sources,

Assessment methods

These will include practical exercises, assignments and tests. A final in-class examination will be administered at the end of the course.

5. SENIOR RESIDENCY

5.1 The 3rd to 5th Year Residency Training

This involves more advanced training. The candidate builds on the knowledge gained during the 1st and 2nd years of training. During this period the candidate is expected to be involved with decision-making in patient management; should write a proposal and commence data gathering for the Part II (Final) Fellowship Examination dissertation. A candidate who has the opportunity can also spend 6-12 months in an overseas ophthalmology training institution with a view to acquiring more competencies.

Towards the end of the 5th year the candidate submits a dissertation as part of the requirement for the Part II (Final) Fellowship Examinations.

5.2 **The specific clinical competencies to be learnt during the period include**:

a. Perform complex refractions competently including higher order aberrations as well as post-surgery refractions.

b. Competently and confidently assess low vision patients and prescribe appropriate aids to them.

c. Perform and interpret in more details clinical exam findings including corneal topographic map; retinal drawing for detachment and other lesions; A and B Scans; gonioscopy, etc.

d. Supervise and guide competently junior residents in the management of ocular emergencies.

e. Hold tutorials for junior residents, medical students, and other paramedical personnel in the eye care team.

f. Identify key examination techniques and management of complex though common medical and surgical problems in 4 of the subspecialty areas of glaucoma, cornea and anterior segment, ophthalmic plastic surgery + neuro-ophthalmology, paediatric ophthalmology and strabismus, public and community eye health, medical retina and interprets plain x-rays, ultrasound, CT, MRI, OCT, etc. of the eye and orbit.

g. Perform and treat complications of cataract and glaucoma surgeries.

h. Acquire competencies in the efficient organization of eye care services and leadership of the eye care team. Candidates should attend the College-organized Research Methodology course, health resources management course, and medical education course.

i. Acquire competence in epidemiologic and clinical ophthalmic research and publication. Candidates are encouraged to co-author at least 2 journal articles.

j. Master common anterior segment surgical procedures – cataract and glaucoma surgeries as well as manage complications.

k. Recognize microbial, hematologic and histopathologic features of ophthalmic disorders.

5.2.2 Subspecialty Competencies:
Candidates are to adopt one of the subspecialties of interest and follow the relevant postings.
The curriculum of each of the subspecialties are separately designed for use of Senior Residents. A proposal for Thesis(for those interested in MD Degree) or Dissertation for others, are expected within the 3rd year of training.
The subspecialties are as follows:

1. COMPREHENSIVE OPHTHALMOLOGY
2. CORNEA AND ANTERIOR SEGMENT
3. GLAUCOMA
4. NEURO-OPHTHALMOLOGY
5. OPHTHALMIC PLASTIC SURGERY
6. PAEDIATRIC OPHTHALMOLOGY AND STRABISMUS
7. PUBLIC and COMMUNITY EYE HEALTH
8. VITREO-RETINA

5.2.3 The minimum surgical/procedure experience expected for the subspecialties will be as detailed in the various subspecialty curriculum. The supervising consultant ophthalmologist should assess and certify these surgical procedures as and when performed. For this purpose, the candidates should maintain a Faculty-approved log- book.

S/N	**Course code**	**Courses**	**Duration (months)**	**Contact academic time (hrs/wk = Total hrs)**	**Contact Clinical/ Surgical time (hrs/wk = Total hrs)**	**Credit units**
5.3.1	OPH 926	Cornea and Anterior segment senior posting	3	4(48)	35(420)	12.5
5.3.2	OPH 927	Glaucoma senior posting	3	4(48)	35(420)	12.5

5.3.3	OPH 928	Neuro-ophthalmology senior posting	3	4(48)	35(420)	12.5
	OPH 929	Ophthalmic plastic surgery senior posting	3	4(48)	35(420)	12.5
5.3.4	OPH 930	Paediatric Ophthalmology and Strabismus senior posting	3	4(48)	35(420)	12.5
5.3.5	OPH 931	Public and Community eye health senior posting	3	4(48)	35(420)	12.5
5.3.6	OPH 932	Vitreo-retina senior posting(mainly medical retina)	3	4(48)	35(420)	12.5
5.3.7		Comprehensive Ophthalmology Subspecialty	24	4(384)	35(3,360)	100
5.3.8		Cornea and Anterior segment Subspecialty	24	4(384)	35(3,360)	100
5.3.9		Glaucoma Subspecialty	24	4(384)	35(3,360)	100
5.3.10		Neuro-ophthalmology Subspecialty	24	4(384)	35(3,360)	100
5.3.11		Ophthalmic Plastic surgery Subspecialty	24	4(384)	35(3,360)	100
5.3.12		Paediatric ophthalmology and Strabismus Subspecialty	24	4(384)	35(3,360)	100

5.3.13		Public and Community eye health Subspecialty	24	4(384)	35(3,360)	100
5.3.14		Vitreo-Retina Subspecialty	24	4(384)	35(3,360)	100
		TOTAL				**50 + 100 =150**

All Senior Residents are to rotate through OPH 926 and 927(together =25 credit units) in addition to 2 of 928-932(2 * 12.5)= 25 credit units) depending on his/her specialty area. So having 50 credit units in the first year of Senior Residency. Each specialty area account for additional 100 credit units in the remaining 2 years of senior residency.

MANDATORY COURSES:

(a) College-based courses:

Course code	Course	Duration(months)	Contact academic time in hours	-	Credit units
PMC 951	Research Methodology in Medicine Course	1 week	30	-	2
PMC 952	Health Resources management Course	1 week	30	-	2
PMC 953	Ethics in Clinical Practice	1 week	30		2
PMC 901	Advanced Trauma Life Support (ATLS)	1 week	30		2
	TOTAL				8

(b) Faculty-based courses:

OPH 933	Clinical ophthalmology Revision course for Senior Residents	2 weeks	60	-	3
OPH 934	Advanced Community ophthalmology course	1 week +4 days hands-on	30	24 hours	2

PMC 998 Seminars 6 credit units
PMC 999 Thesis/ Dissertation 12 credit units

Senior Residents are to rotate through OPH 926 and OPH 927 and the 2 additional relevant postings out of OPH 928-32 in the first 12 months of training giving a total of **50 credit units**. The concluding 24 months will be devoted to one of the subspecialties (each having **100 credit units**) as well as 5 College compulsory courses(26 credit units) and 2 Faculty compulsory courses(5 credit units). With dissertation work(12 unit) and Seminars(6 units) making 18 credit unis to achieve **50+100+8+5 +18=181 Credit units.**

5.4 Research Training

Residents are encouraged to learn the wholesome habit of systematic clinical problem solving, featuring observation, interpretation, deductive reasoning, decision-making, and intervention followed by further observation. This habit which resident doctors are encouraged to acquire during training is itself the basic requirement for competence in research.
Besides, training institutions are obliged to institute a research committee and an ethical committee part of the function of which is to screen research proposals within the department for appropriateness and scientific content as well as for compliance with ethical requirements.

A monthly departmental research seminar is expected to be the forum in which young researchers present their projects for discussion and receive the criticism and guidance of their teachers and peers.

5.5 Teaching Skills

True to the hierarchical organization in medicine, resident doctors have the opportunity of acquiring teaching skills during training through the practice whereby every doctor teaches those junior to him, other members of the health team, as well as counsel his patients and relatives in order to achieve an effective therapeutic alliance and good clinical practice.
In addition, resident doctors have the opportunity to attend educational methodology workshops and management and computer courses conducted by the college. Training institutions are encouraged to avail their residents of this opportunity.

5.6 Management Training

The secretariat of the College conducts management courses twice a year, which is mandatory for senior residents. Also, second/third year senior residents should be appointed as chief residents and given the opportunity to serve in a managerial post.

5.7 Communication Skills

It is important that ophthalmologists should be effective communicators, not only in the ordinary running of clinical practice involving medical record documentation, case presentation, case referral and discharge summary writing, but also in the context of scientific journal publication, conference presentations and answering examination questions.
Therefore, the training programme must provide opportunities for the acquisition and evaluation of various levels of communication skills. (Appendix III)

5.8 Continuing Education (courses, workshops, conferences, etc.)

The need for continuing medical education especially in the field of ophthalmology and other medical specialties is just as vital as the period of fellowship training. Fellows of the Faculty of Ophthalmology are actively encouraged to continue their ophthalmological training throughout their active practice life. Among other means to achieve this, Fellows and Associate Fellows are encouraged to take active interest in activities of the Faculty and the College. They should be encouraged to take advantage of modern information technology (internet) facilities as well as attend both local and international conferences, association meetings where they communicate freely with colleagues, other groups or schools of thought. A resident (Associate Fellow) should attend at least a conference (local or international) each year.

A resident should show evidence of having attended at least one Ophthalmological Society of Nigeria (OSN) conference to qualify to sit for the Part I examination and one additional OSN national conference to qualify to sit for the Part II examination.

5.9 Credit Uunits: The Senior Residency phase is therefore 177 CREDIT UNITS as indicated in the rotation of postings above.

5.10Assessments And Examinations

5.10.1 Formative Assessment: In order to effectively prepare the resident for the various parts of the FMCOph examinations, it is advisable for the trainers to assess their residents by regular formative assessment exercises.

5.10.2 Log book: Procedures which are mandatory for each clinical posting are addressed in the resident's log book. Once adjudged satisfactory, such procedures are credited to the resident. To be signed off at the end of each posting, the resident must be judged to have satisfactorily performed all the mandatory procedures for that posting.

5.10.3 An **end of posting** test is highly recommended.

5.10.4 Annual Report: Each year an annual report on the progress of each resident is required to be sent to the Faculty Secretariat.

6. CERTIFYING EXAMINATION OF THE COLLEGE

6.1 Application for College Certifying Examinations

The Fellowship Examinations are held twice a year in March/April/May and September/October/November. A call for application is published in at least one of the National Daily newspapers and College website in December and June for the March/May and September/November examinations respectively.

Candidates are advised to watch out for and comply with the examination application requirements as outlined in these advertisements.

6.2 Primary Fellowship Examination

Candidates are advised to attend available Basic Science courses before taking the primary Examination.
The Primary Fellowship Examination is an entrance examination into the residency training and consists of 200 multiple-choice question (MCQ) covering basic medical sciences applied to ophthalmology. The format for the MCQ will be single best answer in four stem format.

6.2.1 BLUE PRINTING IN PRIMARY MCQ

	Item fields	**No of items**	Taxonomy Level 1	Taxonomy Level 2	Taxonomy Level 3	**Credit units**
	BASIC &APPLIED OCULAR ANATOMY	**50**	20	15	15	**8**
	BASIC &APPLIED OCULAR PHYSIOLOGY	**40**	15	15	10	**6.5**
	BASIC &APPLIED OCULAR PATHOLOGY	**40**	15	15	10	**6.5**
	BIOCHEMISTRY AND CELL BIOLOGY	**20**	8	7	5	**3.5.**
	THERAPEUTICS	**20**	5	7	8	**3.5**
	CLINICAL GENETICS	**20**	10	5	5	**3**
	PHYSIOLOGY OF VISION	**10**	5	3	2	**1**
	TOTAL	**200**	78	67	55	**32**

6.2.2 **Pass Score:** A pass in Primary CBT MCQ Examination will be based on the predetermined Pass Score by the Faculty Court of Judges using modified Angoff standard setting.

6.2.3 **Credit Units:** The Primary phase consists of Self-instructional learning for a minimum of 48 weeks amounting to 32 CREDIT UNITS as shown in the Blue Printing table above.

6.2.4 **Exemption from Primary Examinations:** Candidates who have been successful in the West African College of Surgeons Primary Examination may on request be exempted from the Primary Examination.

6.3 Part I Fellowship Examination

To be eligible to sit the Part I Fellowship Examination, candidates should have:
Passed Primary examination
Completed junior residency training
Satisfactorily performed all prescribed surgical procedures relevant to each posting, and been duly signed up in the certificate of training, to that effect. Candidates are eligible to write the

The Part I Fellowship examination shall consists of three sections.

6.3.1 Written papers:

These shall consist of:

a. Paper I consisting of:

One 3-hour 200 stem multiple choice questions in all aspects of ophthalmology with a blue printing as follows:

Items fields	Number of items	Taxonomy Level 1	Taxonomy Level 2	Taxonomy Level 3
Medical/Community Ophthalmology	60	15	25	20
Surgical Ophthalmology	60	15	25	20
Optics and errors of refraction	40	10	15	15
Ocular pathology	40	10	15	15

To proceed to the rest of the examination, a candidate must pass this CBT MCQ paper which takes place at least a month before the rest of Part I examinations. The PASS SCORE is determined by Court of Judges before the exam using modified Angoff standard setting.

b. Paper 2: One written paper for 3 hours in optics and errors of refraction.

c. Paper 3: One written paper for 3 hours in medical and surgical ophthalmology including ocular pathology and community eye health.

Standard setting for deciding the PASS SCORE for the ESSAY (ie. Papers 2 and 3): Where candidates are 20 or more: Borderline group method should be used but, Where candidates are less than 20: Borderline regression method should be used.

6.3.2 Clinical examination consisting of

a. **Objective Structured Clinical Examination** in Ophthalmology.
Candidates are assessed for the quality and thoroughness of:
   i) History taking and examination
   ii) Case presentation
   iii) Interpretation of clinical findings
   iv) Patient management.
   v) Soft skill eg. Ethics, Counselling, Consent taking, breaking bad news, etc.
   vi) Special attention is paid to the candidate's ability to foresee and prevent complications associated with his management strategy.

Standard setting for deciding the PASS SCORE for OSCE should be: Manned Stations - Borderline group method and Unmanned Stations - Modified Angoff Method should be used

b. **Practical/Objective Structured Practical Evaluation (OSPE)** – Covers aspects of surgical and clinical examination skills including refraction and optics, interpretation of ancillary tests results/pictures/charts; patient problem management and handling of ophthalmic diagnostic and surgical instruments. This will consist

of minimum of 10 active practical stations and 11 active refraction/optics stations, making a minimum total of 21.

Standard setting for deciding the PASS SCORE for OSPE should be: Manned Stations - Borderline group method and Unmanned Stations - Modified Angoff Method should be used

c. Oral (Viva Voce)

The purpose of Viva Voce is to cover as wide a field as possible with the candidate. Each candidate is subjected to twenty minutes oral examinations dealing with principles of surgery, pre-and post-operative management, surgical pathology, diagnostic modalities and operative surgery.

The oral examination shall be integrated into 4 Stations of at least 5 minutes each along with the OSCE but its scores shall be extracted and presented as a separate component of the examination.

The Standard setting method for Orals - Borderline group method should be used to obtain the pass score

The Part I examination with regard to the Principles of Optics and Refraction will emphasize tests of competencies in the areas enumerated in the detail curriculum for Junior Residency

d. Examination Results

In order to pass the part 1 examination a candidate must obtain a pass in the combined clinical examination which includes a must pass in refraction, and a PASS in the overall examination. By having a minimum of average PASS SCORE using the appropriate standard setting method for each aspect.

Grading of Scoring in the different components of the examination shall be as follows:

In scoring out of 100 for single-unit score per item as in Multiple Choice Questions, Picture Test, OSPE, OSCE, etc.

SCORES	LEVEL OF PASS	GRADE	GRADE LEVEL
70 or above	Very good Pass	A	P+1
60-69	Good Pass	B	P+
50-59	Pass	C	P
40-49	Borderline	D	P-
<40	Fail(No compensation)	E	P-1

For a candidate to pass the Part 1 Fellowship examination of the Faculty, he/she:

1) Must obtain an aggregate pass mark (C) in the clinical examination; which must include a pass mark (C) in Clinical Optics/Refraction component.

2) Must obtain an aggregate pass mark (C) overall of the examination;

a) a D in Clinical/Practical cannot be compensated

6.4 Assessment methods for MD Degree

These will include practical exercises, assignments and tests. A final thesis defence examination will be administered at the end of the course.
This thesis defence will take place at least 6 months before the Part II Final for FMCOph.
6.4.1 Teaching Methods: This will include didactic lectures, seminars, case studies, assignments and practical sessions.
6.4.2 Resources: Computers and internet access, Journal articles, Research materials from the ICO and American Academy of Ophthalmology.
6.4.3.Assessment Methods:
Assignments, Formative assessment, Summative assessment, Thesis presentation and defense

6.5 Part II Fellowship Examinations

The Part II Examination is designed to complete the assessment of professional competence in ophthalmology before the award of the Fellowship in Ophthalmology (FMCOph). Candidates are eligible to write the examination at least by the 36th month of senior residency training.

6.5.1 Dissertation Proposal Preparation and approval: The dissertation proposal should have at least 2 supervisors one of whom must be a Fellow of the Faculty and agree to critically supervise the design, collection of data, analysis of data and general write up of the dissertation. Submit written attestations by the supervisors indicating their willingness to supervise the project for the dissertation

The criteria to qualify as a supervisor is as the prevailing approval by the Faculty and the College. The proposal should be considered in a departmental seminar and approved by the department before sending to the ethical review board.

Approval from the relevant institutional review board or ethical approval for the study should be obtained before registration of the dissertation proposal with the College.

The proposal is assessed by at least 2 fellows qualified to be Part II examiners and the processing is concluded within 3 months of submission preferably.

Exams shall be done not earlier than 12 months after proposal for dissertation has been approved by the College

PAGE FORMAT AND LAYOUT OF THE PROPOSAL
Guidelines on the page format and layout include:
i. Font: Size 11 or 12 of *Times New Roman.*
ii. Margins: At least 1" right, left, top and bottom.
iii. Spacing: Double line spacing.
iv. Page Arrangement: Each of the major sections of Title page, Introduction, Literature Review, Aim and Objectives of the Study, Proposed Methodology, List of References and each Appendix should begin on a new page.

iv. Numbering of Pages: Pages are numbered in Arabic numerals (1, 2, 3, etc.). Page 1 should begin with the title page with page numbers placed at the center and bottom of the pages.
v. Tables and Illustrations: Tables are numbered in capital Roman numerals (I, II, III, etc.) with caption of the Table on top, while Illustrations are numbered in Arabic numerals (1, 2, 3, etc.) with caption below the Illustrations.

6.5.2 The Dissertation: The objective of the dissertation is, among others, to give the candidate a chance to demonstrate that he/she is able to choose a research topic, define the research objectives, collect data, analyze and discuss the results scientifically and objectively. The write up of the dissertation should follow the approved format, namely:

i) **Title Page featuring**

The title of the work

"submitted by"

The name of the author

to

"The National Postgraduate Medical College of Nigeria"
in part fulfilment of the requirements for the award of the final Fellowship of the Medical College in Ophthalmology (FMCOph)

"Date of Examination"

ii) The Declaration Page

In which the candidate declares that the work presented has been done by him/her under the appropriate supervision, and it has not been submitted in part or full for any other examination.

a. Certification/Attestation

In which the Supervisor(s) himself(themselves) attest(s) to the fact that the work had been done, and the dissertation written under his (their) close supervision.

b. Acknowledgement

In which the candidate specifically acknowledges all the assistance he has received in the course of the work, including copying permissions. Specific contributions by others must be clearly stated as to leave no doubts as to what the authors' roles were.

c. **Dedication** Page which is optional, may be included here.

d. Table of contents-

This should include appendices.

e. List of Tables

f. List of Figures

g. List of Abbreviations

h. Abstract (Summary)

The main work begins with a structured (Background and Aim, Methodology, Results, and Conclusion) summary of the dissertation featuring the key features in about 500 words.

Nothing should feature in the summary that has not been presented in greater detail in the main body of the work.

The following sections of the work should be presented in separate chapters, namely:

1. The Introduction

   The introduction chapter should contain a clear definition of the problems to be studied, including, a justification for the study, a delimitation of the scope of the study. Statistical information in this section and indeed throughout the dissertation should be stated in actual figures and percentages for ease of understanding and for sound arguments.

   Aim and objectives of the Study- SMART (Specific, Measurable, Achievable, Realistic and Time bound). These should clearly and succinctly state the general aims and objectives (or purpose) of the study as well as its specific aims and objectives targeting health and value systems.

2. Review of Literature

   This should review broad body of knowledge on the subject in relation to the aims and objectives of the study in a logical clinical sequence.

   Detailed analysis, criticisms, discussions should be backed with appropriate statistics as above.

3. Patients and Methods or Materials and Methods

   This should be designed in relation to the aims and objectives of the study. Depending on the study, an early consultation with a biostatistician/epidemiologist is advised. This is the most important part of the study and requires clear details of what and how the study was actually done

4. The Results

   When required, not more than a table or a chart with a concise legend should be presented on a page; the mathematical and statistical issues should be

error free and meticulously written. It is extremely important that both the presentations and interpretations of the data should be properly done

5. The Discussion
   This section interprets and discusses in more detail the results of the study
   Limitations: It need not be presented as a separate chapter or subheading

Conclusion and Recommendations: This should clearly present deductions and recommendations from the study

6. References,

Using the system proposed by the International Committee of Medical Journal Editors i.e. According to the Vancouver style: surname(s) of author(s), author(s)'initial(s), title of the article, abridged name of journal as per index medicus, year, volume of journal, page e.g. Br J Ophthalmol 2010; 296:401- 4

For book references, the sequence is as follows: - Author(s)/Editor(s), Chapter, Title of the book, publisher, town, edition and year of publication, pages consulted. All references should be listed according to their sequence of appearance in the article.

7. Appendices

Candidates are advised, not only to acquire a copy of the Faculty Handbook on Curriculum, but to attend at least one of the yearly intensive courses in Research Methodology organized by the College.

When a candidate is appearing for the oral examination on his/her dissertation, he/she is required to bring a copy of the dissertation(unbound) paged in the same way as the copy previously submitted (uploaded on the e-portal) for the examination.

Candidates can use reference managers but ensure that the style used is as per the approved by the College

6.5.3 Components of the Part II Fellowship Examinations

The Part II Fellowship Examinations shall consist of:

a) A comprehensive oral examination on the candidate's dissertation. The "Dissertation orals" shall focus on the candidate's accomplishment of those objectives of the dissertation earlier stated in this handbook. The assessment will conform to the marking scheme as approved by the Faculty/College. The duration shall be 60 to 90 minutes.

b) Orals on the General Principles and Practice of Ophthalmology which shall focus respectively on:

i. Principles of Ophthalmology- 10
ii. Medical, Tropical and Surgical Ophthalmology including pathology in candidates Subspecialy area -70
iii. Community Ophthalmology -10

iv. Management and other soft Skills- 10
The ORAL examination shall include 6 standard questions with marking schemes and PASS SCORES using Borderline group method. Duration will be 60 minutes

In the case of a provisional pass the candidate should make all the required corrections and submit to the college within the stipulated period of three months.

The assessors' copies of all corrected dissertations must be uploaded on the College portal within 48 hours following completion of Part II examinations, together with the comments. These are then directed through the portal to the chosen assessor to whom the dissertation is disposed for the final assessment.

Where a candidate is to be re-examined on the same dissertation, the copy of the corrected dissertation and the copy of the previous dissertation along with the previous assessors' comments should be sent to the assessor for ease of cross-checking and to avoid raising new issues.

6.5.4 Examination Results

To pass the examination, a candidate must:

a) Have his/her dissertation accepted at *P* or *P+* level
b) Pass the Viva Voce
c) Conditions for Provisional Pass, Referral in Dissertation and Fail

i) A candidate whose dissertation needs some significant corrections, i.e. *P-* level pass, but who had passed the Viva Voce shall have a Provisional Pass.

ii) The corrections of the dissertation shall be made within three months and must be satisfactorily vetted by one of the examiners before it can be accepted. Once accepted, the provisional pass is converted to a full pass by the College

iii) A candidate who has his/her dissertation accepted as *P* or *P+* level but fails in the Viva Voce shall be referred in the Viva Voce only.

iv) A candidate who scores a P-level pass in the Dissertation and fails the Viva Voce shall be deemed referred in Orals with Provisional Pass in Dissertation.

v) The candidate would be required to make the corrections in the book within 3 months after the exams and if satisfactory to the examiners, will be expected to repeat only the Viva Voce. However, if the dissertation remains unacceptable to the examiners, the candidate would be required to sit both the dissertation and the Viva Voce.

vi) A candidate, having passed the Viva Voce but whose dissertation needs major restructuring, i.e. *P-1* level, shall be referred in the Dissertation only.

vii) A candidate whose dissertation needs major restructuring, i.e. *P-1* level and also failed the Viva Voce is deemed to have failed the entire exam.

6.5.5 Publication of the Results

The results of the Fellowship examinations in Ophthalmology are published by the College Registrar on approval by the Senate

6.5.6 Correspondence

The National Postgraduate Medical College of Nigeria or the Faculty of Ophthalmology does not normally enter correspondence or discussion in respect of the details of a candidate's performance in the examination.

6.5.7 LITERATURE AND STUDIES FOR REVIEW INCLUDE

GENERAL REFERENCES (BOOKS)

The Herpetic Eye Disease Study (HEDS)
The Fluorouracil Filtering Surgery Study (FFSS)
The Normal Tension Glaucoma Study
The Ocular Hypertension Study (OHTS)
The Glaucoma Laser Trial (GLT)
The Optic Neuritis Treatment Trial (ONTT)
The Ischemic Optic Neuropathy Decompression Trial (IONDT)
Studies of the Ocular Complications of AIDS (SOCA)
Branch Vein Occlusion Studies (BVOS)
Macular Photocoagulation Study (MPS)
Age-Related Eye Disease Study (AREDS)
Verteporfin in Photodynamic Therapy (VIP) Study
Treatment of Age-Related Macular Degeneration with Photodynamic Therapy (TAP)
Silicone (oil) Study
The Submacular Surgery Trials (SST)
The Multicenter Trial of Cryotherapy for Retinopathy of
Prematurity (CRYO-ROP)
Central Vein Occlusion Studies (CVOS)
Diabetes Control and Complications Trial (DCCT)
Diabetic Retinopathy Study (DRS)
Early Treatment Diabetic Retinopathy Study (ETDRS)
Randomized Trial of Acetazolamide for Uveitis-Associated Cystoid Macular Edema
Collaborative Ocular Melanoma Study (COMS)
Selected Review Articles.

Note that this list is not exhaustive.

7.ACCREDITATION OF TRAINING INSTITUTIONS GUIDELINES

7.1 UNIFORM CRITERIA/GUIDE FOR ACCREDITATION

The Senate of National Postgraduate Medical College of Nigeria at its meeting of 3rd December 2015 approved Uniform Criteria /Guidelines for Accreditation of Training Institutions as follows:

BASIS

The College recognizes that the training of specialist requires

1. Qualified and experienced personnel
2. Appropriate infrastructure
3. A well-structured training programme that recognizes modern trends of training and assessments
4. Opportunities and evidence of acquisition of skills
5. Access to up-to-date information

6. Regular feedback and evaluation from trainers and trainees

PHILOSOPHY: The process must be:-

- Fair

Done when the institution is ready

- Transparent

What is being assessed and persons assessing is known to all

- Objective

Minimal bias in the choice of the accreditors – usually not from the institution of affiliates

- Instructive

Feedback given to heads of Institutions

- Monitored

Reaccreditation done after a clearly defined period – 5 years (Full), 2 years (Partial)

DEFINITIONS AND WEIGHTING

MANDATORY REQUIREMENT.

1. **Qualified personnel**

The College approved that the basic qualification for training is the Fellowship of College (by examination or election but not honorary). The individual must have had at least 5 years' experience working in a training institution and must be financially up-to-date. It is also expedient that departments in Institutions should have a good mix of the College training in the country so that trainees will have the maximum benefits of current rules and regulations governing their training. Weighting should be 15%of total accreditation score

2. Appropriate Infrastructure

This is a major pillar without which training cannot take place. What is appropriate will be defined by faculties. But facilities must be well constructed and maintained with the basic amenities

a. light
b. water
c. waste disposal

Available and with adequate backup. These includes

a. wards
b. out patients clinic
c. laboratories
d. theaters
e. radiological suites, etc

The weighting shall be a minimum of 10% of total accreditation scores. This can be sub-divided into core infrastructure (5%) and support infrastructure (5%)

3 **Equipment**

The College noted that equipment is an essential component in the acquisition of skills and competence. The minimum equipment needs will be determined by faculties and the procedure/log book will be necessary in assessing this component. The weighting shall be a minimum of 20% of total accreditation score.

4. **Structured training programme**:

The College has approved curricula and required competencies that trainees are expected to acquire. It is expected that institutions have a well-publicized (every trainee should have it in writing) structured programme which faithfully implemented and evaluated by a departmental residency committee. This programme must be seen by the accreditation team. Weighting should be 15% of total accreditation score.

5. **Opportunities/ Evidence of skill acquisition**

In recognition that our profession is an apprenticeship, all trainees must be provided with the opportunities of acquiring the necessary skills to be competent as a specialist. Records of such must be seen. This includes a procedure registrar, theater list and log book. Weighting should be 15% of total accreditation score.

DESIRABLE REQUIREMENT

6. **Access to new information**

This is a crucial element in making our trainees lifelong learners. It is therefore expected that there should be institutional support for trainees to attended updates, revisions, conference and seminars. It is also expedient that trainees acquire the skills at making presentation at departmental meetings and other scientific of professional. The library and the internet are veritable sources of information and it is expected that training institutions have such facilities accessible to the trainees. Evidence of all these must be seen. Weighting should be 15% of total accreditation score

7. **Regular feedback and evaluation**:

Evaluation is an important aspect of training. It is recognize that assessment can be formative /continues or summative. The College traditionally have carried out summative examinations at the end of each part. However, training requires regular feedback from trainers to trainees and vice versa. Mentorship builds on the concept of regular evaluation, feedback, appropriate guidance and counseling of trainees. A good training programme must have these inbuilt and faithfully carried out. Weighting should be 10% of total accreditation score.

Total score is 100% or 100 points

TABLE OF REQUIREMENT AND GRADING

No	**Requirement**	**Inadequate 0**	**Partially Adequate 7.5**	**Full Adequate 15**
1.	Qualified and experienced personnel a. Prescribed number (full time/Part time b. prescribed trainers: trainees ratio c. support personnel **(15 Points)**			
2.	Appropriate infrastructure a. basic: water, light, sewage etc b. core departments presents c. support departments presents **(10 Points)**			
3	Equipment a. core equipment b. support equipment **(20 Points)**			

4	Well-structured training programme a. seen by all b. content (lectures, tutorial , bedside sessions) **(15 Points)**			
5	Opportunities/ Evidence of skill acquisition a. Procedure Register b. Theater List c. Log Book **(15 Points)**			
6	Access to new information(15 point) a. library b. Internet **(15 Points)**			
7	Regular feedback and evaluation **(10 Point)**			
8	**TOTAL**			

< 0=49 (Scores less than 50%) - Accreditation Denied

≥50-74 (Scores equals to 50% and Less than 75%) - Partial Accreditation for 2 years

>75-100 (Scores equals or greater than 75% and above) - Full Accreditation for 5 years

2. **Effectiveness/function/role of visiting Consultants**

1. A visiting Consultant should have a minimum of 5 years post Fellowship experience
2. No training should take place in any institution without permanent consultants on ground
3. There must be documented evidence of activities of a visiting Consultant that residents are being supervised by him/her.
4. For the purpose of accreditation the full time equivalent should be as follows:
   2 visiting Consultants to 1 Full time Consultant.

3**. Period of Accreditation**

1. Partial accreditation should last for 2 years. Within the period of the Partial accreditation, one monitoring visit should be made to the institution.

2. Full accreditation should last for 5 years. Within the period of the Full accreditation, two monitoring visits should be made to the institution.

4. **Effective Date of Accreditation**

The effective date for existing accreditation should be with effect from the date of visitation, irrespective of the time the Senate approves the report.

The effective date for new accreditation should be from the date of Senate approval.

5**. Trainers/trainee ratio**

The ratio of Residents to consultants should be minimum of 3:1 or Maximum 4:1. That is, One (1) Senior Registrar and Two (2) Registrars OR Two (2) Senior Registrars and Two (2) Registrars to one Consultant.

6. The number of Consultants is not the sole determinant for accreditation status, either as partial or full.

Every other criteria are taken into account to arrive at the verdict of either Partial or Full accreditation.

8. For any re-accreditation visit, the report of the previous accreditation visit should be made available to the current nominated panel member, to enable them to compare notes and ensure that progress is being made.

7.2 COLLEGE PRESCRIBED **SUMMARY OF ACCREDITATION VISIT**

Please note following

1. This College format should be attached to Faculty specific format.
2. it is required that Accreditation Panelist sign this format as well as Faculty Secretary and Chairman
3. The report should be in MS-Word format and hard copy.

A.

1. **Name of Faculty**……
2. **Name of Hospital visited**:……
3. **Programme being accredited**:…… ……
4. **Members of panel**:

4.1 ……(Chairman)

4.2 ……(Secretary)

4.3 ……(Member)

4.4 ……..…(Member)

4.5 ……..……(Member)

4.6 ……. (Member)

5. 5.1 **Date Hospital request was made**:……

5.2 **Date visitation was made**:…….

6. Staff

6.1a No. of Consultants with NPMCN Fellowship:……

No	Name	Faculty	Area of Specialization	Year of fellowship	Email	Phone
1						

2						
3						
4						
5						
6						
7						
8						
9						
10						

6.1b No of Consultants with Other Fellowship (WACP/WACS):……

No	Name	Faculty	Area of Specialization	Year of fellowship	Email	Phone
1						
2						
3						
4						
5						
6						
7						

7. Resident doctors

7.1 **No. of Senior Residents**:……..

7.2 **No. Passed Part I FMC Examination**:……

7.3 **No. of Junior Resident**:……

8. **Summary of findings**:……

1. …….
2. ……

3. ……
4. ……
5. ……
6. ……
7. ……
8. ……
9. ……
10. ……

9. Summary of recommendations

1. ……
2. ……
3. ……
4. ……
5. ……
6. ……
7. ……
8. ……
9. ……

10. Panel's decisions/recommendations to Faculty Board

1. ……
……
2. ……
……
3. ……
……
4. ……
……

11a. Accreditation Score 0-49 (Scores less than 50%) - Accreditation Denied; ≥50-74 (Scores equals to 50% and Less than 75%) - Partial Accreditation for 2 years ≥75-100 (Scores equals or greater than 75% and above) - Full Accreditation for 5 years

11. b. Duration of Accreditation Recommended/ Accreditation Status- a. Full ☐

b. Partial ☐

c. Denied ☐

Signature of Panelist/date

11. 1 ……

11.2 ……

11.3. ……

11.4 ……

11.5 ……

11.6 ……

12 Faculty Board's decision and recommendation to SCCFA

1. ……..

2. ……

3. ……

4 ……

5. ……

12.1 **Faculty Chairman's Signature and Date**:……..

12.2 **Faculty Secretary's Signature and Date**:……

13. SCCFA's decisions/recommendations to senate

1. ……

2. ……

3. ……

4. ……

5. ……

7.3 **FACULTY OF OPHTHALMOLOGY-SUMMARY OF ACCREDITATION VISIT**

1. Name of Hospital visited _____

2. Programme for which Accreditation is sought [_____]

3. Membership of Visitation Panel:

3.1 _____ [Chairman] 3.2 _____ [Secretary]

3.3 _____ [Member] 3.4 _____ [Member]

4.1 Date Hospital request was made [ ]

4.2 Dates Visitation was made [ ]

5. FINDINGS

5.1 **STAFFING**: [Please circle appropriate response]

Adequate in number: Good Fair Poor Not Applicable

Adequacy in quality and experience Good Fair Poor Not Applicable

Attach list of staff: Name, Qualification with date

5.2 **PATIENT CARE**

5.2.1 Wards: Adequacy in number Good Fair Poor Not Applicable

Adequacy in Quality [cleanliness, equipment, drugs, residents work space etc]

Good Fair Poor Not Applicable

5.2.2 Theatre: i) Adequacy in space Good Fair Poor Not Applicable

ii) Adequacy in equipment: Operating Microscopes, Microsurgical sets, Autoclave, Hot-air oven

Good Fair Poor Not Applicable

iii) Surgical Load – Cataract, Trabeculectomy, others/Year

Good Fair Poor Not Applicable

5.2.4 Clinics: Is there a General out-patients clinic[s]? YES NO

Are there any Specialist clinics? YES NO

[specify]; 1 2 3

4 5 6

Adequacy of consulting space: Good Fair Poor Not Applicable

Adequacy of patient waiting space: Good Fair Poor Not Applicable

Availability of equipment: Good Fair Poor Not Applicable

i) Slit lamps
ii) Perimeters- specify
iii) Tonometers: Goldman, Perkins, Non-Contact
iv) Snellen's charts
v) Direct Ophthalmoscopes
vi) Indirect Ophthalmoscopes
vii) Retinoscopes
viii) Trial lense boxes
ix) Autorefractor
x) A & B Scan
xi) Diagnostic lenses; Goniolenses, +90D, +78D
xii) Lasers
xiii) Fundus camera, etc
xiv) Wet-lab equipments

5.2.5 Laboratory and other supporting services

Adequacy in number and types Good Fair Poor Not Applicable
Number of Staff Good Fair Poor Not Applicable

5.2.6 Medical Records
Functional organization/facilities Good Fair Poor Not Applicable
No of Patients/Year
New/Old

5.2.7 Pharmacy Services Good Fair Poor Not Applicable

5.3 **TRAINING PROGRAMME**

5.3.1 Rotations Good Fair Poor Not Applicable

5.3.2 Meetings, Seminars Etc Good Fair Poor Not Applicable

5.3.3 No. of Junior Residents staff Good Fair Poor Not Applicable

5.3.4 No. of Senior Residents Staff Good Fair Poor Not Applicable
Opinion/Attitude of Residents
towards programmes Good Fair Poor Not Applicable

5.3.5 Opinion of Hospital/Department
towards NPMCN programmes Good Fair Poor Not Applicable

5.3.6 Departmental Library Good Fair Poor Not Applicable

5.3.7 Community Outreach Centre

6. **SUMMARY [IF ANY]**

7. RECOMMENDATIONS AND DECISIONS

7.1 PANEL'S RECOMMENDATIONS SUMMARISED:

[a] To Department and Hospital (Annotated)

1

2

3

4

5

[b] To Faculty Board of NPMCN
Type of recommended accreditation [tick] FULL [ ] PARTIAL [ ]

Period of accreditation [tick] FULL [ ] TEMPORARY [ ] [YEARS]

Total number of residents at any given period – Junior [Residents]
Senior [Residents]

Date [ ] **SIGNATURE OF**:

PANEL CHAIRMAN _____ PANEL SECRETARY _____

PANEL MEMBER _____ PANEL MEMBER _____

RECOMMENDATIONS OF FACULTY BOARD TO SENATE OF NPMCN
[Tick as appropriate]
[ ] Panel's recommendations upheld without modification

[ ] Panels recommendations rejected and substituted as follows:

_____

_____

[ ] Panel's recommendations accepted with the following modifications:

_____

_____

SIGNATURES OF:

FACULTY CHAIRMAN **FACULTY SECRETARY**

SCCFA's RECOMMENDATIONS

Date of meeting [ ]

[ ] Faculty Board's recommendations upheld without modification

[ ] Faculty Boards recommendation rejected and substituted as follows

_____

_____

[ ] Faculty Board's recommendations accepted with the following modifications:

_____

_____

SIGNATURE OF:

7.3 SENATE DECISION

Date of meeting [ ]

[ ] SCCFA's recommendations upheld without modification

[ ] SCCFA's recommendations rejected and substituted as follows

_____

_____

_____

[ ] SCCFA's recommendations accepted with the following modifications:

_____

_____

_____

Date [ ] [ ]

[ ]

COLLEGE REGISTRAR'S SIGNATURE

APPENDIX I

TRAINERS AND TRAINEES RIGHTS

TRAINERS RIGHTS

1. Trainer has the right to determine how and when residents are sent for postings.
2. Trainer has the right to accept or refuse training of a resident
3. Trainer has the right to objectively evaluate the effort of residents' "
4. Trainer has the right to sign up residents for exanimations
5. Trainer has the right to reprimand erring residents within the Hospital's disciplinary measures
6. Trainer has the right to expect respect and honour from residents (Hippocratic Oath)

TRAINERS RESPONSIBILITIES

Trainer is responsible for organizing:

1. Outpatient clinic training sessions
2. Consultants teaching ward rounds
3. Journal sessions
4. Clinical evaluation sessions
5. Outside postings.
6. Grand rounds for residents
   *Chief residents status can assist the trainer in achieving some of these responsibilities
7. Trainer has the responsibility of signing residents for examinations
8. Trainer has the passive responsibility of training residents such that they pass examinations in record time.
9. Trainer has the responsibility to discipline residents but not abuse residents. (Discipline becomes abuse when threats are used and there is donkey use of residents for duties not linked to training)
    a. How to discipline - Delay postings, refuse to sign up the resident if adjudged not ready for exams, issue queries for tardiness and shirking of duties.

MOTIVATION BY TRAINERS

1. Informal sessions with residents to find out their difficulties
2. One on one counseling of residents with problems
3. Above all motivation by showing good example. Leadership by example

RESIDENTS RIGHTS

1. Resident has the right to expect structured training program
2. Resident has the right to expect clinical teaching sessions

3. Resident has the right to expect surgical training sessions

4. Resident has the right to expect objective evaluation by trainer

5. Resident has the right to expect leadership by example from the trainer

6. Resident has the right to expect informed directives from trainers concerning residency curriculum.(Trainers must be familiar with NPMC handbook for residents and trainers)

RESPONSIBILITIES OF RESIDENT

1. The resident has the responsibility of making sure postings are completed before exams

2. Residents have the responsibility of attending all clinical rounds, ward rounds, surgical sessions, grand rounds, and teaching rounds structured to train them adequately.

3. Residents have the responsibility of working hard to meet examination requirements and pass exams in record time.

4. Residents have the responsibility of giving respect and honour to their trainers

5. Residents have the responsibility of making sure log books are duly filled with trainers signatures for procedures performed.

6. Residents have the responsibility to finance their examinations and conduct themselves properly during the examination.

Residents have the responsibility of working in accordance with Nigerian Medical and Dental Counsel's medical code of ethics i.e. Don't get involved in private practice without supervision-i.e. cataract surgery (Avoid malpractice).