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الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

In The Name of Allah

PREFACE

- The primary goal of this document was to enrich the experience of postgraduate trainees by outlining the learning objectives and competencies necessary for them to become independent and competent practitioners.
- This curriculum may contain sections outlining training regulations; however, such regulations must be sought from the "General Bylaws of Training in Postgraduate Programs" and "Executive Policies" published by the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website. In the case of discrepancies in the regulation statements, the statements in the most updated bylaws and executive policies must be considered.
- As this curriculum is subject to periodic refinement, please refer to the electronic version posted online for the most updated edition at www.scfhs.org.sa

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II. COPYRIGHT STATEMENTS

We acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada and that many of the competencies described have been acquired from their resources. Please refer to Frank, J. R., Snell, L., Sherbino, J., & Boucher, A. (2015). CanMEDS 2015 Physician Competency Framework Series I. Ottawa: Royal College of Physicians and Surgeons of Canada.

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IV. INTRODUCTION

1. Context of Practice

Diseases affecting the eye and adnexa are among the leading causes of morbidity, visual impairment, and blindness worldwide. At least 2.2 billion individuals globally have vision impairment or blindness, of which over one billion cases could have been prevented or are to be addressed.[1,2] Early detection, effective treatment, and specialized care are critical for reducing the disease burden and restoring vision.

National epidemiological surveys in Saudi Arabia have demonstrated the considerable prevalence of ocular diseases, with preventable blindness being a significant public health concern. Studies emphasize the increasing burden of diabetic retinopathy and cataracts, driven by the high prevalence of diabetes in the Kingdom.[3,4] Late presentation complicates management and outcomes.[5] These findings highlight the need for locally trained ophthalmologists to address the increasing healthcare demands of the population, leading to the establishment of a structured national residency program in 1984.

Since then, ophthalmology practice in the Kingdom has expanded, reflecting global advances in this specialty and the unique demographic and epidemiological characteristics of the Saudi population. Outpatient services are the majority of patient encounters, complemented by inpatient and surgical care for complex conditions. The scope of practice includes anterior segment disease, corneal disorders, glaucoma, retinal disease, uveitis, pediatric ophthalmology, oculoplastic, neuro-ophthalmology, and refractive surgery, ensuring comprehensive exposure across subspecialties.

Despite this progress, current and future challenges remain. The increasing prevalence of diabetes increases the incidence of diabetic retinopathy and cataracts, while the aging population increases the demand for glaucoma and age-related

macular degeneration services.[6] These trends highlight the need for the continuous expansion of training capacity, enhancement of workforce competencies, and ongoing curriculum development to align with international benchmarks while addressing national health priorities.

2. Goals and Responsibilities of Curriculum Implementation

This curriculum aims to guide ophthalmology trainees to become competent, safe, and independent practitioners capable of addressing the eye health needs of the population. Achieving this goal requires substantial effort and coordination among all stakeholders in postgraduate training. As "adult learners," ophthalmology residents must be proactive, engaged, and understand their learning objectives. They are expected to commit to self-directed study, practice clinical and surgical skills, problem-solving, reflective practice based on feedback, and formative assessment. A growth mindset, self-awareness, and willingness to seek supervision are essential for professional development.

Program directors, trainers, accreditors, and training stakeholders play vital roles in ensuring successful curriculum implementation. In ophthalmology, the training committee, faculty members, program administrators, and chief residents contribute substantially to curriculum delivery, including organizing structured didactics, wet-lab and simulation-based training, surgical exposure, and research. Trainees share responsibilities by participating in teaching rounds, case discussions, journal clubs, and quality improvement initiatives.

The Saudi Commission for Health Specialties (SCFHS) applies a recognized competency model of training governance to achieve high-quality training. Postgraduate ophthalmology programs must integrate research, evidence-based practice, and surgical audits into their curriculum to prepare graduates for lifelong learning and scientific advancement. Academic affairs in training centers and regional supervisory committees ensure effective supervision and implementation. The

Specialty Scientific Committee in Ophthalmology ensures that the curriculum content is regularly reviewed and updated to maintain alignment with the high standards of postgraduate medical education.

3. What is new in this edition?

Description of Change	Category	Training Level Initiation
Transition from rotation/time-based training (2014 edition) to competency-based framework (2025 edition), structured around CanMEDS roles, milestones	Major	All training levels
Competencies, enabling competencies, assessment tools, and educational activities were explicitly mapped to each rotation in the new edition.	Major	All training levels
Emergency Room Rotation: Similar rotation structure was retained, but with expanded details on competencies, emergency procedures, and interprofessional collaboration.	Minor	All training levels
Anterior Segment rotation: Clearer separation of cataract/anterior segment competencies (phacoemulsification, keratoplasty, and ocular surface procedures) from glaucoma and retina. The old curriculum combined the anterior segment and cornea under broader headings.	Major	R2–R4
Research rotation: The new edition explicitly requires participation in research, audits, and scholarly projects across rotations. It mandates that each resident initiate a thesis project in R3 and complete it in R4. The old edition encouraged research but did not mandate structured outputs.	Major	R3–R4

Description of Change	Category	Training Level Initiation
Educational Activities Reform: Old edition emphasized morning reports, journal clubs, case presentations, and Morbidity and Mortality reviews. The new edition streamlines these by removing morning reports, making grand rounds weekly, and adding structured weekly quizzes and combined-teaching rounds (CTR).	Major	All training levels
Elective rotation: The new edition specifies two elective blocks (2 months total) that can include ophthalmic subspecialties, research, or optics. Old edition listed elective/research without standardized structure.	Major	R4
The new edition incorporates wet lab, dry lab, and simulation-based training (EyeSi simulator, corneal suturing on animal eyes, Basic Phacoemulsification course, and Advanced Phacoemulsification course). This was not formally included in the 2014 edition.	Major	All training levels
The new edition introduces a structured program evaluation using a quality assurance framework, trainee satisfaction surveys, faculty evaluations, and outcome mapping. The previous edition did not outline a systematic program evaluation.	Major	Program-wide
Both editions include universal topics, but the new edition updates their delivery through a modular format, mandatory completion, and online formative/summative assessments.	Minor	All training levels
The new edition defines explicit surgical numbers for phacoemulsification, penetrating keratoplasty (PKP), glaucoma filtering procedures, vitreoretinal, pediatric,	Major	All training levels

Description of Change	Category	Training Level Initiation
oculoplastic, lasers, and injection. The old edition listed procedures but not in a structured, numeric format.		
Replacement of the “Manager” role with “Leader” in alignment with CanMEDS 2015. The wording of the competencies has been updated, and professional expectations have been clarified.	Minor	All training levels

V. ABBREVIATIONS USED IN THIS DOCUMENT

Abbreviation	Full Term
SCFHS	Saudi Commission for Health Specialties
ER	Emergency Room
ECCE	Extracapsular Cataract Extraction
IOL	Intraocular Lens
Phaco	Phacoemulsification
PCIOL	Posterior Chamber Intraocular Lens
PKP	Penetrating Keratoplasty
LKP	Lamellar Keratoplasty
DCR	Dacryocystorhinostomy
DOPS	Direct Observation of Procedural Skills
Mini-CEX	Mini-Clinical Evaluation Exercise
ITER	In-Training Evaluation Report
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination

Abbreviation	Full Term
SOE	Structured Oral Examination
FITER	Final In-Training Evaluation Report
PRP	Panretinal Photocoagulation
FB	Foreign Body
YAG	Yttrium Aluminum Garnet
OCT	Optical Coherence Tomography
BSC	Basic Science Course
EYPT	End of Year Progress Test

VI. PROGRAM ENTRY REQUIREMENTS

Admission to the Saudi Ophthalmology Residency Program follows the executive policy of the Saudi Commission for Health Specialties (SCFHS) regarding admission and registration. Applicants must fulfill SCFHS requirements.

Admissions are conducted through the SCFHS Matching System, and applicants are advised to regularly consult the official SCFHS website (www.scfhs.org.sa) for the most recent admission policies and procedures.

VII. LEARNING AND COMPETENCIES

1. Introduction to Competency-Based Education

Training should be guided by well-defined "*enabling competencies*" that are developed based on a particular program's "*competencies*" to serve specific specialty needs. Enabling competencies reflect the professional "*competencies*" and tasks to be "*entrusted*" to trainees upon graduation. This ensures that graduates meet the healthcare system and patient care demands related to their specialties. *Competency-based education* (CBE) is an "*adult-learning*" approach grounded in achieving *pre-defined*, *fine-grained, and well-paced* sub-competences derived from complex professional competencies.

Professional competencies in healthcare are usually complex and have multiple learning domains (knowledge, skills, and professional behavior). CBE is expected to change the traditional approaches to postgraduate education. For instance, although training is a precious resource, training time should not be considered a proxy for *competence* (e.g., rotation time in certain hospital areas is not the primary marker of competence achievement). Furthermore, CBE emphasizes the critical role of informed judgment in assessing a trainee's competency progress based on their staged, progressive performance using data from multiple educational and assessment encounters, methods, and workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare, such as CanMEDS by the Royal College of Physicians and Surgeons of Canada.[7] The concepts are as follows:

a. **Competency:** Competency refers to a healthcare professional's observable ability to encompass knowledge, skills, values, attitudes, and professional behavior. It reflects the potential to perform efficiently in a given situation based on professional standards and involves applying these components in real-world settings. Professional roles (e.g., medical experts, health advocates, communicators, leaders, scholars, collaborators, and professionals) define competency roles, making them malleable for learning and assessment purposes.

b. **Milestones**: Milestones represent stages in the developmental journey along the competency continuum. Throughout their learning journey, trainees from junior to senior levels assist in transitioning from novice/supervised to master/unsupervised states. This should not undermine the role of supervisory/regulatory bodies in independent practitioners' malpractice. Milestones are expected to enhance the learning process by pacing training/assessment to match trainees' developmental levels (junior vs. senior).

c. **Learning Domains:** The categories or dimensions of learning encompass the development of a learner's abilities and attributes. These domains are commonly divided into three key areas: K = Knowledge, S = Skills, and A = Attitude (also known as professional behavior).

Principles of Competency-Based Medical Education (CBME)

These include:

1. **Focused Outcomes:** CBME defines and achieves outcomes based on societal needs, ensuring that graduates meet these standards.
2. **Competencies as a Framework:** The curriculum defines abilities or competencies that integrate knowledge, skills, attitudes, and behavior.
3. **Learner Centered Approach:** This approach allows trainees to progress at their own pace by demonstrating competencies.
4. **Integrated Assessment:** This uses multiple assessment methods to evaluate competencies comprehensively and continuously.

5. **Flexibility in Learning Pathways:** It encourages adaptable learning experiences to meet competency standards.
6. **Focus on Real-World Application:** This emphasizes the application of knowledge and skills in practical real-world contexts.
7. **Supervision and Feedback:** Supervision and feedback promote continuous improvement and ensure safety.
8. **Emphasis on Lifelong Learning:** It prepares learners for self-directed learning and adaptation to an evolving healthcare environment.
9. **Accountability:** This ensures that training meets societal needs and prepares professionals to be competent.

The SCFHS endorses CanMEDS for articulating professional competencies. The curriculum applies CBME principles. CanMEDS is a globally accepted framework that outlines competency roles. CanMEDS was used in this study.

The following reference exemplifies a general outline of:

1- The CanMEDS competency (Frank, J. R., Snell, L., Sherbino, J., & Boucher, A. (2015). *CanMEDS 2015 Physician Competency Framework Series I*. Ottawa: Royal College of Physicians and Surgeons of Canada.)

2. Program Duration

Four years.

3. Program Rotations

Stage	Training Year	Mandatory core rotations*			Elective rotations**		
		Rotation name	Duration***	Setting	Rotation name	Duration	Setting
Junior	R1	Basic Science Course	8 Weeks	Lectures			
		Emergency room	8 Weeks	Outpatient			
		Oculoplastic/Neuro-ophthalmology	8 Weeks	Outpatient and inpatient			
		Comprehensive Ophthalmology	12 Weeks	Outpatient and inpatient			
		Pediatric Ophthalmology	8 Weeks	Outpatient and inpatient			
		Vacation	4 Weeks				
	R2	Emergency room	8 Weeks	Outpatient			
		Glaucoma	8 Weeks	Outpatient and inpatient			
		Retina/Uveitis	8 Weeks	Outpatient and inpatient			
		Anterior segment	12 Weeks	Outpatient and inpatient			
		Pediatric Ophthalmology	8 Weeks	Outpatient and inpatient			
		Vacation	4 Weeks				

Stage	Training Year	Mandatory core rotations*			Elective rotations**		
		Rotation name	Duration***	Setting	Rotation name	Duration	Setting
Senior	R3	Emergency room	8 Weeks	Outpatient			
		Glaucoma	4 Weeks	Outpatient and inpatient			
		Oculoplastic/Neuro-ophthalmology	8 Weeks	Outpatient and inpatient			
		Comprehensive Ophthalmology	8 Weeks	Outpatient and inpatient			
		Anterior segment	8 Weeks	Outpatient and inpatient			
		Retina/Uveitis	8 Weeks	Outpatient and inpatient			
		Vacation	4 Weeks				
	R4	Emergency room	4 Weeks	Outpatient			
		Glaucoma	8 Weeks	Outpatient and inpatient			
		Retina/Uveitis	8 Weeks	Outpatient and inpatient			
		Anterior segment	12 Weeks	Outpatient and inpatient			
		Pediatric Ophthalmology	4 Weeks	Outpatient and inpatient			
					Elective****	8 Weeks	
		Vacation	4 Weeks				

**Mandatory core rotation: Set of rotations representing the program's core component that are mandatory for completion.*

***Elective rotation: Set of rotations that are associated with the specialty, as determined by the scientific council/committee, and the trainee is required to complete some of them.*

****Duration of each block is 1 calendar month; including vacation.*

*****Trainees are required to complete two elective blocks (total of 2 months). Each block is 1 calendar month in duration and may be taken in different options. Elective choices included any ophthalmic subspecialty, research, or optical.*

4. Mapping of Competencies, roles, assessment, and educational activities to program rotations

Rotation Descriptions

This section aims to match the competencies and objectives for each rotation type. Trainees and trainers should collaborate to achieve their objectives during teaching, learning events, educational activities, and formative assessments. Expectations should evolve as the training progresses (e.g., training stage, level, and milestones).

Rotation 1: Emergency Room

Introduction

Emergency room (ER) rotations expose residents to acute ophthalmic presentations and emergencies, including trauma, infections, acute vision loss, and postsurgical complications. The rotation is designed to develop skills for the rapid assessment, differential diagnosis, stabilization, and management of urgent ophthalmic conditions. Residents learn effective interdisciplinary communication with emergency physicians, anesthesiologists, and other specialists to optimize the patient outcomes.

Training Level:

R1, R2, R3, R4

Duration:

- R1: 2 months
- R2: 2 months
- R3: 2 months
- R4: 1 month

Setting:

Ophthalmology Emergency Room/Emergency Department with ophthalmology coverage.

Educational Activities:

Direct patient care in the ER, on-call duties with graded responsibility, faculty-supervised case discussions and bedside teaching, and half-day activities.

Assessment Tools:

Mini-CEX, DOPS, ITER

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
• ME 1: Practice ophthalmology within the defined practice and expertise scope in the emergency setting. • ME 2: Perform a patient-centered ophthalmic assessment and establish an appropriate management plan. • ME 3: Plan and perform emergency ophthalmic procedures for diagnosis and/or treatment.	1. Perform focused ophthalmic history-taking for acute presentations (e.g., trauma, acute red eye, and sudden vision loss). (Junior and senior level) 2. Conduct appropriate emergency ophthalmic examinations, including visual acuity, slit-lamp, intra-ocular pressure (IOP) measurement, and fundoscopy. (Junior) 3. Recognize and prioritize life- and vision-threatening emergencies, such as open globe injuries, acute angle-closure glaucoma, central retina artery occlusion (CRAO), chemical burns, orbital cellulitis, endophthalmitis, and retrobulbar hemorrhage. (Junior and Senior level) 4. Demonstrate proficiency in emergency procedures: corneal foreign body (FB) removal, anterior chamber paracentesis, eyelid laceration repair, and ocular irrigation for chemical burns. (Senior level) 5. Manage common emergency room (ER) conditions (corneal abrasion, conjunctivitis, subconjunctival hemorrhage, hyphema, and orbital fractures). (Junior Level) 6. Escalate appropriately to senior residents or consultants when cases exceed competency. (Junior Level) 7. Apply evidence-based guidelines in emergency ophthalmology care. (Senior Level)

Collaborator

Competencies	Enabling Competencies
• COL 1: Effectively collaborating with other health professionals to provide safe, high-quality patient care. • COL 2: Demonstrate effective teamwork in an emergency setting.	1. Collaborate with ER staff, anesthesiology, and radiology in complex emergencies. (Junior and Senior Levels) 2. Recognize when to involve subspecialty services. (Senior Level) 3. Respect the roles and responsibilities of allied health staff (nurses, and technicians). (Junior and Senior Levels)

Communicator

Competencies	Enabling Competencies
• COM 1: Establish professional and therapeutic relationships with patients and their families. • COM 2: Communicate effectively with colleagues and other healthcare professionals.	1. Explain the diagnosis and management plan to patients and their families in a clear, empathetic manner. (Junior and senior levels) 2. Obtain informed consent for the emergency procedures. (Senior level) 3. Provide concise and structured case presentations during handovers and consultations. (Junior and senior levels) 4. Document findings and management in the medical records accurately and promptly. (Junior and senior levels)

Health Advocate

Competencies	Enabling Competencies
• HA 1: Respond to the health needs of patients and the community. • HA 2: Advocate for preventive measures to reduce ocular morbidity.	1. Educate patients on safety measures (protective eyewear and chemical handling). (Junior level) 2. Counsel patients on the importance of follow-up care after receiving emergency treatment. (Junior level) 3. Identify system gaps affecting access to urgent ophthalmic care and suggest improvements. (Senior level)

Leader

Competencies	Enabling Competencies
• Led 1: Contribute to the improvement of healthcare delivery in the ER setting. • Led 2: Prioritize and manage clinical responsibilities efficiently.	1. Demonstrate effective triage of multiple ophthalmic emergencies. (Senior level) 2. Manage time effectively during high patient volumes. (Junior and senior level) 3. Participate in ER workflow improvements (e.g., patient flow and documentation efficiency). (Junior level) 4. Serve as a role model for junior residents and medical students. (Senior level)

Scholar

Competencies	Enabling Competencies
• S 1: Engage in continuous learning and evidence-based practice. • S 2: Contribute to the creation and dissemination of knowledge.	1. Critically appraise the literature on emergency ophthalmology management. (Senior level) 2. Participate in ongoing research or audit projects related to ophthalmic emergencies. (Junior Level)

Professional

Competencies	Enabling Competencies
• P 1: Demonstrate commitment to patients through ethical practices. • P 2: Exhibit professional behavior with integrity and accountability.	1. Respect patient confidentiality and dignity during ER encounters. (Junior and senior levels) 2. Maintain professional behavior under stressful and high-volume conditions. (Junior and senior levels) 3. Recognize personal limitations and seek appropriate supervision when necessary. (Junior and senior levels) 4. Adhere to the SCFHS and institutional policies in clinical practice. (Junior and senior levels)

Rotation 2: Comprehensive Ophthalmology

Introduction

A comprehensive ophthalmological rotation provides residents with broad exposure to general ophthalmic conditions encountered in outpatient and inpatient settings. It focuses on developing strong diagnostic skills, clinical reasoning, and management strategies for common ophthalmic diseases while emphasizing preventive care and patient education. Residents gain experience in handling routine cases, recognizing complex conditions that require referral, and performing minor procedures under supervision.

Training Level:

R1, R3

Duration:

- R1: 3 months
- R3: 2 months

Setting:

Outpatient comprehensive ophthalmology clinics, and preoperative and postoperative cataract care clinics.

Educational Activities:

Direct patient care in clinics and wards, faculty-supervised case discussions in clinics and operating rooms (OR), daily work-based learning, and half-day activities.

Assessment Tools:

Mini-CEX, DOPS, ITER

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
• ME 1: Conduct thorough ophthalmic assessments in outpatient and inpatient settings. • ME 2: Formulate management plans for common ophthalmic conditions. • ME 3: Perform basic ophthalmic procedures under supervision and progress toward independent practice.	1. Perform comprehensive ophthalmic history and physical examination (including slit-lamp, fundoscopy, tonometry, and visual field interpretation). (Junior level) 2. Diagnose and manage common conditions such as cataracts, glaucoma, diabetic retinopathy, dry eye disease, and conjunctival disorders. (Senior level) 3. Identify red-flag features in general practice that require urgent referral to subspecialty services. (Junior and senior level) 4. Prescribe and monitor topical and systemic ophthalmic medications appropriately. (Senior level) 5. Perform minor procedures such as chalazion incision and curettage, removal of superficial foreign bodies, punctal dilation and irrigation, yttrium aluminum garnet (YAG) Capsulotomy, YAG peripheral iridotomy. (Junior and senior level) 6. Develop competency in preoperative and postoperative cataract assessment and follow-up. (Senior level) 7. Apply evidence-based guidelines for screening and management of chronic ophthalmic diseases (e.g., diabetic eye disease and glaucoma). (Junior and senior level)

Collaborator

Competencies	Enabling Competencies
• COL 1: Collaborate with other healthcare providers to optimize patient care. • COL 2: Functions effectively within the outpatient team.	1. Coordinate patient management with internal medicine and family physicians for systemic diseases affecting the eye. (Junior and senior level) 2. Collaborate with optometrists, nurses, and technicians to ensure an efficient clinic workflow. (Junior and senior level) 3. Recognize situations that require consultation and referral to subspecialty ophthalmology services. (Senior level)

Communicator

Competencies	Enabling Competencies
• COM 1: Establish therapeutic relationships with patients and caregivers in outpatient settings. • COM 2: Deliver clear explanations of the disease, prognosis, and treatment options.	1. Counsel patients on chronic disease management (e.g., glaucoma adherence and diabetic retinopathy screening). (Senior level) 2. Provide clear instructions regarding the use of medications and their side effects. (Junior and senior level) 3. Communicate effectively with primary care providers to ensure continuity of care. (Junior and senior level) 4. Document clinical encounters accurately and comprehensively. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
• HA 1: Promote eye health and disease prevention in the community. • HA 2: Advocate for improved patient adherence and long-term care.	1. Counsel patients on preventive eye care (Ultraviolet [UV] protection, smoking cessation, and systemic disease control). (Junior and senior level) 2. Encourage adherence to follow-up schedules for chronic diseases. (Junior and senior level) 3. Identify barriers to care (e.g., socioeconomic and geographic) and escalate to appropriate support services. (Senior level)

Leader

Competencies	Enabling Competencies
• LDR 1: Manage clinical duties effectively in a busy outpatient environment. • LDR 2: Demonstrate initiative in organizing patient care.	1. Prioritize patients according to urgency in high-volume clinics. (Senior level) 2. Contribute to efficient clinic operations while maintaining quality care. (Junior level) 3. Act as a role model for junior residents and medical students during outpatient teaching. (Senior level)

Scholar

Competencies	Enabling Competencies
• S 1: Maintain commitment to lifelong learning and evidence-based practice. • S 2: Contribute to knowledge dissemination in comprehensive ophthalmology.	1. Critically review the new literature relevant to general ophthalmology practice. (Senior level) 2. Present clinical cases during weekly academic activities and/or daily teaching rounds. (Junior and senior level) 3. Participate in research projects related to epidemiology, preventive care, or management of common eye conditions. (Junior and senior level)

Professional

Competencies	Enabling Competencies
• P 1: Uphold ethical practices in outpatient and inpatient care. • P 2: Demonstrate integrity, accountability and respect.	1. Respect patient confidentiality and cultural sensitivity in communication. (Junior and senior level) 2. Demonstrate professionalism in interactions with patients and healthcare providers. (Junior and senior level) 3. Accept and act on the feedback from supervisors. (Junior and senior level) 4. Show accountability in clinical decision-making and follow-up care. (Senior level)

Rotation 3: Oculoplastic/Neuro-Ophthalmology

Introduction

Oculoplastic/neuro-ophthalmological rotation provides residents with a broad exposure to the diagnosis and management of disorders of the ocular adnexa, orbit, and afferent/efferent visual pathways in outpatient and inpatient settings. It focuses on developing strong diagnostic skills, clinical reasoning, and management strategies for a broad spectrum of common oculoplastic/neuro-ophthalmological diseases, such as eyelid malposition, ptosis, lacrimal disorders, optic neuropathies, and diplopia. It emphasizes oculoplastic- and neurophthalmology-specific history taking, advanced slit-lamp and orbital examination techniques, pupillary testing, interpretation of visual fields and neuroimaging, ptosis management, and surgical skills under supervision. Residents will gain progressive experience by assisting in oculoplastic and orbital surgeries to perform minor eyelid procedures under supervision, along with mastering lesion localization, ordering appropriate neuro-ophthalmic investigations, and evidence-based management of complex neuro-ophthalmic conditions.

Training Level:

R1, R3

Duration:

- R1: 2 months
- R3: 2 months

Setting:

Outpatient oculoplastic and neuro-ophthalmology clinics and preoperative and postoperative oculoplastic clinics.

Educational Activities:

Direct patient care in clinics and wards; half-day activities.

Assessment Tools:

Mini-CEX, DOPS, ITER

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
▪ ME 1: Conduct thorough oculoplastic and neuro-ophthalmological assessments in outpatient and inpatient settings. ▪ ME 2: Formulate management plans for common oculoplastic and neuro-ophthalmology diseases. ▪ ME 3: Perform basic oculoplastic procedures under supervision and progress toward independent practice.	1. Perform comprehensive oculoplastic and neuro-ophthalmology history and physical examination, including external adnexal assessment, irrigation test, Hertel exophthalmometry, color vision testing, optic nerve evaluation (disc appearance and function), and visual field interpretation. (Junior and senior level) 2. Diagnose and manage common oculoplastic and neuro-ophthalmology conditions, such as nasolacrimal duct obstruction, eyelid malposition, ptosis, dry eye disease, eyelid neoplasms, lacrimal gland pathology, cranial nerve palsies, idiopathic intracranial hypertension, ischemic, inherited, and nutritional optic neuropathies, as well as non-organic visual loss. (Senior level) 3. Identify red-flag features that require urgent referral to other ophthalmic subspecialties or systemic services. (Senior level) 4. Prescribe and monitor topical and systemic ophthalmic medications appropriately. (Junior level) 5. Perform minor procedures, such as chalazion incision and curettage, hyfercation, temporary tarsorrhaphy, and punctal dilation and irrigation. (Senior level)

Competencies	Enabling Competencies
	6. Develop competency in preoperative evaluation, surgical planning, postoperative assessment, and follow-up care. (Senior level) 7. Apply evidence-based guidelines for the screening, diagnosis, and management of oculoplastic and neuro-ophthalmology conditions (e.g., ptosis, idiopathic intracranial hypertension, and optic neuropathies). (Junior and senior level)

Collaborator

Competencies	Enabling Competencies
▪ COL 1: Collaborate with other healthcare providers to optimize patient care. ▪ COL 2: Function effectively within the outpatient team.	1. Coordinate patient management with internal medicine, neurology, pathology, and family physicians for systemic diseases affecting the eyes. (Junior and senior level) 2. Collaborate with optometrists, nurses, and technicians to ensure an efficient clinic workflow. (Junior and senior level) 3. Recognize situations that require consultation and referral to subspecialty ophthalmology services. (Senior level)

Communicator

Competencies	Enabling Competencies
▪ COM 1: Establish therapeutic relationships with patients and caregivers in outpatient settings. ▪ COM 2: Deliver clear explanations of the disease, prognosis, and treatment options.	1. Counsel patients on chronic disease management (e.g., entropion/ectropion, and ptosis). (Senior level) 2. Provide clear instructions regarding the use of medication and their side effects. (Junior level) 3. Communicate effectively with primary care providers to ensure continuity of care. (Junior and senior level) 4. Document clinical encounters accurately and comprehensively. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
▪ HA 1: Promote eye health and disease prevention in the community. ▪ HA 2: Advocate for improved patient adherence and long-term care.	1. Counsel patients on preventive eye care (UV protection, smoking cessation, and systemic disease control). (Junior and senior level) 2. Encourage adherence to follow-up schedules for chronic diseases. (Junior and senior level) 3. Identify barriers to care (e.g., socioeconomic and geographic) and escalate to appropriate support services. (Senior level)

Leader

Competencies	Enabling Competencies
▪ LDR 1: Manage clinical duties effectively in a busy outpatient environment. ▪ LDR 2: Demonstrate initiative in organizing patient care.	1. Prioritize patients according to urgency in high-volume clinics. (Senior level) 2. Contribute to efficient clinic operation while maintaining quality care. (Junior level) 3. Act as a role model for junior residents and medical students during outpatient teaching. (Senior level)

Scholar

Competencies	Enabling Competencies
▪ S 1: Maintain commitment to lifelong learning and evidence-based practice. ▪ S 2: Contribute to knowledge dissemination in comprehensive ophthalmology.	1. Critically review new literature relevant to oculoplastic and neuro-ophthalmology practice. (Senior level) 2. Present clinical cases at grand rounds or teaching sessions. (Junior and senior level) 3. Participate in research projects related to the epidemiology, preventive care, or management of common oculoplastic and neuro-ophthalmology conditions. (Junior and senior level)

Professional

Competencies	Enabling Competencies
▪ P 1: Uphold ethical practices in outpatient and inpatient care. ▪ P 2: Demonstrate integrity, accountability and respect.	1. Respect patient confidentiality and cultural sensitivity in communication. (Junior and senior level) 2. Demonstrate professionalism in interactions with patients and healthcare providers. (Junior and senior level) 3. Accept and act on the feedback from supervisors. (Junior and senior level) 4. Show accountability in clinical decision-making and follow-up care. (Senior level)

Rotation 4: Pediatric Ophthalmology

Introduction

The pediatric ophthalmology rotation exposes residents to childhood eye diseases, strabismus, amblyopia, cataracts, congenital anomalies, and ocular trauma. It emphasizes pediatric-specific history-taking, examination techniques, amblyopia management, and surgical skills under supervision.

Training Level:

R1, R2, R4

Duration:

- R1: 2 months
- R2: 2 months
- R4: 2 months

Setting:

Pediatric ophthalmology and strabismus clinics, orthoptic clinics, inpatient consultations, and pediatric OR rooms

Educational Activities:

Direct patient care in clinics and wards, orthoptic assessments, amblyopia management, supervised surgical exposure, and weekly academic activities.

Assessment Tools:

Mini-CEX, DOPS, ITER.

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
▪ ME 1: Perform ophthalmic assessments in pediatric patients ▪ ME 2: Formulate management plans for common pediatric conditions ▪ ME 3: Perform pediatric ophthalmic procedures under supervision ▪ ME 4: Recognize urgent pediatric ocular conditions	1. Adapt history-taking and examination techniques to age and developmental stage. (Junior and senior level) 2. Diagnose and manage amblyopia, strabismus, congenital anomalies, pediatric cataracts, and ocular trauma. (Senior level) 3. Assist and perform probing, strabismus surgery, pediatric cataracts, and other age-appropriate procedures. (Senior level) 4. Identify and manage emergencies, such as retinoblastoma, corneal abrasion/ulcer, congenital glaucoma, and pediatric orbital cellulitis. (Junior level)

Collaborator

Competencies	Enabling Competencies
▪ COL 1: Work with a multidisciplinary team ▪ COL 2: Coordinate systemic and ocular care	1. Collaborate with orthoptists, pediatricians, anesthesiologists, and nurses. (Junior and senior level) 2. Ensure integration of ophthalmic care in children with systemic diseases. (Senior level)

Communicator

Competencies	Enabling Competencies
▪ COM 1: Communicate effectively with children and families ▪ COM 2: Counsel families with empathy and clarity ▪ COM 3: Maintain accurate communication with colleagues	1. Use age-appropriate communication to establish rapport and explain diagnoses. (Junior level) 2. Discuss treatment options, prognosis, and follow-up needs. (Senior level) 3. Provide structured documentation and effective handovers. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
▪ HA 1: Promote early detection and intervention ▪ HA 2: Counsel families on prevention	1. Advocate for amblyopia screening and timely management of congenital eye diseases. (Junior and senior level) 2. Provide education on injury prevention, eye safety, and adherence to follow-up. (Junior and senior level)

Leader

Competencies	Enabling Competencies
▪ LDR 1: Manage time and clinical duties in pediatric settings ▪ LDR 2: Support team learning	1. Prioritize patients in a busy pediatric clinic. (Junior and senior level) 2. Supervise and mentor junior staff and medical students during pediatric encounters. (Senior level)

Scholar

Competencies	Enabling Competencies
▪ SCH 1: Apply evidence-based practice ▪ SCH 2: Contribute to academic activities	1. Critically appraise the literature related to pediatric ophthalmology. (Senior level) 2. Present cases at weekly academic activities and engage in research on childhood eye diseases. (Junior and senior level)

Professional

Competencies	Enabling Competencies
▪ P 1: Uphold professionalism in pediatric care ▪ P 2: Recognize limits and seek guidance ▪ P 3: Maintain accountability	1. Demonstrate compassion, patience, and ethical practice. (Junior and senior level) 2. Escalate appropriately when beyond competence. (Junior and senior level) 3. Ensure accurate follow-up and responsible decision-making. (Junior and senior level)

Rotation 5: Glaucoma

Introduction

Glaucoma rotations provide residents with progressive exposure to glaucoma diagnosis, management, and surgical treatment. Residents learn to perform comprehensive glaucoma evaluations, interpret diagnostic imaging, and initiate medical, laser, and surgical management. Training emphasizes longitudinal follow-up, individualized patient care, and the integration of evidence-based guidelines.

Training Level:

R2, R3, R4

Duration:

- R2: 2 months
- R3: 1 month
- R4: 2 months

Setting:

Outpatient glaucoma clinics, diagnostic imaging units, LASER suites, and operating rooms.

Educational Activities:

Direct patient care in glaucoma clinics and OR, supervised case discussions, performance of diagnostic procedures, participation in glaucoma surgeries, and half-day academic activities.

Assessment Tools:

Mini-CEX, DOPS, ITER.

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
▪ ME 1: Conduct glaucoma-specific evaluations ▪ ME 2: Formulate individualized management plans ▪ ME 3: Perform glaucoma procedures under supervision ▪ ME 4: Recognize and manage glaucoma emergencies	1. Perform history-taking, gonioscopy, optic nerve assessment, visual field interpretation, and OCT analysis. (Junior level) 2. Initiate and monitor topical and systemic therapies and assess the response. (Junior level) 3. Assist and progressively perform laser procedures (YAG Peripheral Iridotomy, SLT), drainage implants, and filtering surgeries with or without cataract extraction. (Senior level) 4. Identify and treat acute angle-closure crises and postsurgical complications. (Senior level)

Collaborator

Competencies	Enabling Competencies
▪ COL 1: Collaborate with allied health professionals ▪ COL 2: Coordinate systemic and ocular management	1. Work with technicians, nurses, and optometrists in glaucoma care. (Junior and senior level) 2. Liaise with internists regarding systemic medication interactions and risk management. (Junior and senior level)

Communicator

Competencies	Enabling Competencies
▪ COM 1: Counsel patients on chronic disease management ▪ COM 2: Deliver informed consent discussions ▪ COM 3: Document and communicate effectively	1. Explain diagnosis, treatment options, and importance of adherence. (Junior level) 2. Obtain consent for surgery and laser therapy with clarity and empathy. (Senior level) 3. Maintain detailed clinical records and provide structured handovers. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
▪ HA 1: Promote glaucoma awareness ▪ HA 2: Encourage adherence and follow-up	1. Educate patients about risk factors and family screening. (Junior and senior level) 2. Reinforce the importance of long-term treatment and care compliance. (Junior and senior level)

Leader

Competencies	Enabling Competencies
▪ LDR 1: Manage high-volume glaucoma clinics ▪ LDR 2: Contribute to surgical service	1. Prioritize follow-ups and urgent cases. (Junior and senior level) 2. Organize case preparation and support surgical scheduling. (Senior level)

Scholar

Competencies	Enabling Competencies
▪ S 1: Apply evidence-based glaucoma practice ▪ S 2: Contribute to scholarly activities	1. Appraise new guidelines, clinical trials, and integrate findings into care. (Senior level) 2. Present glaucoma cases at weekly academic activities and participate in research or audits related to glaucoma management. (Junior and senior level)

Professional

Competencies	Enabling Competencies
▪ P 1: Demonstrate professionalism in chronic disease care ▪ P 2: Recognize limitations ▪ P 3: Maintain ethical standards	1. Show empathy and patience during long-term patient interactions. (Junior and senior level) 2. Seek senior guidance for complex surgical or medical decisions. (Junior and senior level) 3. Ensure transparency when discussing risks, benefits, and prognosis. (Junior and senior level)

Rotation 6: Retina

Introduction

Retinal rotation provides residents with comprehensive exposure to the medical and surgical diseases of the retina and vitreous. Training emphasizes skills in history taking, retinal examination, interpretation of imaging modalities, intravitreal procedures, and the management of common and complex retinal diseases. Residents progressively participate in laser therapy and assist in vitreoretinal surgery under supervision while learning evidence-based approaches to chronic retinal care.

Training Level:

R2, R3, R4

Duration:

- R2: 2 months
- R3: 2 months
- R4: 2 months

Setting:

Retinal outpatient clinics, retinal imaging and angiography units, laser suites, and vitreoretinal operating rooms.

Educational Activities:

Direct patient care in retinal clinics and OR, supervised case discussions, interpretation of retinal imaging (OCT, Fluorescein angiography, ultrasonography), performance of intravitreal injections and LASER therapy, exposure to and assistance in vitreoretinal surgeries, weekly retina-focused lectures, and half-day academic activities.

Assessment Tools:

Mini-CEX, DOPS, ITER.

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
▪ ME 1: Perform comprehensive retinal evaluations ▪ ME 2: Manage common medical retinal diseases ▪ ME 3: Perform retinal procedures under supervision ▪ ME 4: Recognize and manage retinal emergencies	1. Conduct detailed history, dilated fundus examinations, and interpret OCT, fluorescein angiography, and ultrasonography. (Junior level) 2. Diagnose and treat diabetic retinopathy, age-related macular degeneration, retinal vein occlusion, and macular edema. (Senior level) 3. Administer intravitreal injections, perform panretinal photocoagulation (PRP), focal/grid laser, and assist with vitreoretinal surgeries. (Junior and senior level) 4. Identify and manage acute retinal detachment, endophthalmitis, and central retinal artery occlusion promptly. (Senior level)

Collaborator

Competencies	Enabling Competencies
▪ COL 1: Work with a multidisciplinary team ▪ COL 2: Collaborate with allied health professionals	1. Collaborate with endocrinologists, rheumatologists, internists, and other specialists to manage systemic diseases affecting the retina. (Junior and senior level) 2. Engage imaging technicians and nurses to optimize patient care. (Junior and senior level)

Communicator

Competencies	Enabling Competencies
▪ COM 1: Counsel patients with chronic retinal disease ▪ COM 2: Obtain informed consent ▪ COM 3: Communicate effectively with colleagues	1. Explain prognosis, treatment options, and the need for repeated procedures (e.g., anti-VEGF therapy). (senior level) 2. Provide clear, empathetic discussions regarding the risks and benefits of injections, lasers, and surgeries. (Junior and senior level) 3. Document thoroughly and provide structured case presentations. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
▪ HA 1: Promote preventive eye care ▪ HA 2: Encourage adherence	1. Advocate for diabetic retinopathy screening and patient education. (Junior and senior level) 2. Counsel patients on the importance of regular follow-ups and treatment compliance. (Junior and senior level)

Leader

Competencies	Enabling Competencies
▪ LDR 1: Manage clinic workflow efficiently ▪ LDR 2: Supervise junior colleagues	1. Prioritize high-volume retinal clinics with urgent and chronic cases. (Junior and senior level) 2. Guide residents and students in performing basic retinal assessments. (Senior level)

Scholar

Competencies	Enabling Competencies
▪ S 1: Integrate evidence-based practice ▪ S 2: Contribute to academic activities	1. Appraise literature and apply advances in medical and surgical retina. (Senior level) 2. Present retinal cases in weekly academic sessions and participate in related research. (Junior and senior level)

Professional

Competencies	Enabling Competencies
▪ P 1: Demonstrate professionalism in chronic and acute retinal care ▪ P 2: Recognize limitations ▪ P 3: Maintain ethical conduct	1. Show empathy in long-term care and urgency in emergencies. (Junior and senior level) 2. Escalate cases appropriately for subspecialty intervention. (Junior and senior level) 3. Provide transparent discussions regarding prognosis and treatment burden. (Junior and senior level)

Rotation 7: Anterior Segment

Introduction

Anterior Segment rotation provides residents with focused exposure to the diagnosis and management of corneal, anterior chamber, iris, and lens disorders. Residents were trained in slit-lamp biomicroscopy, anterior segment imaging, and interpretation of corneal topography and biometry images. Surgical training progresses from assisting in cataract extraction and anterior segment procedures under supervision, with an emphasis on patient safety, surgical planning, and complication management.

Training Level:

R2, R3, R4

Duration:

- R2: 3 months
- R3: 2 months
- R4: 3 months

Setting:

Anterior segment outpatient clinics, preoperative and postoperative cataract care clinics, operating rooms, and anterior segment imaging units.

Educational Activities:

Direct patient care in clinics and OR, supervised case discussions, exposure to corneal and anterior segment diagnostic testing, participation in cataract and anterior segment surgeries, and half-day academic activities.

Assessment Tools:

Mini-CEX, DOPS, ITER

Competencies

At the end of this rotation, the resident will:

Medical Expert

Competencies	Enabling Competencies
▪ ME 1: Perform anterior segment evaluations ▪ ME 2: Manage common anterior segment diseases ▪ ME 3: Perform anterior segment procedures under supervision ▪ ME 4: Recognize and manage anterior segment emergencies	1. Conduct slit-lamp biomicroscopy, measure IOP, and interpret corneal topography and anterior chamber imaging. (Junior level) 2. Diagnose and manage keratitis, corneal dystrophies, ectatic disorders, cataracts, and anterior uveitis. (Senior level) 3. Assist and progressively perform cataract surgery (e.g., phacoemulsification, ECCE), corneal suturing, pterygium excision, and keratoplasty. (Junior and senior level) 4. Recognize and manage postoperative complications of cataract and corneal surgery, including wound leaks, corneal edema, and graft rejection. (Senior level)

Collaborator

Competencies	Enabling Competencies
▪ COL 1: Collaborate in surgical and clinical care ▪ COL 2: Coordinate systemic and ocular management	1. Work with anesthesiologists, OR staff, and optometrists for surgical planning and postoperative management. (Junior and senior level) 2. Involve internists in systemic conditions affecting the anterior segment (e.g., uveitis and diabetes). (Junior and senior level)

Communicator

Competencies	Enabling Competencies
▪ COM 1: Provide clear patient counseling ▪ COM 2: Obtain informed consent ▪ COM 3: Communicate effectively with colleagues	1. Explain surgical and nonsurgical treatment options, risks, and expected outcomes. (Senior level) 2. Conduct discussions for cataract and anterior segment surgeries with clarity and empathy. (Senior level) 3. Maintain accurate documentation and structured communication for continuity of care. (Junior and senior level)

Health Advocate

Competencies	Enabling Competencies
▪ HA 1: Promote prevention of anterior segment disease ▪ HA 2: Advocate for cataract surgery access	1. Counsel patients on eye protection, hygiene, and systemic risk factor management. (Junior and senior level) 2. Support initiatives for timely surgical intervention to prevent avoidable blindness. (Junior and senior level)

Leader

Competencies	Enabling Competencies
▪ LDR 1: Manage workflow in busy anterior segment clinics ▪ LDR 2: Contribute to surgical services	1. Prioritize cases efficiently and ensure smooth clinic function. (Senior level) 2. Participate in surgical case preparation, scheduling, and team support. (Junior and senior level)

Scholar

Competencies	Enabling Competencies
▪ S 1: Apply evidence-based anterior segment practice ▪ S 2: Contribute to academic activities	1. Appraise and apply advances in cataract surgery and corneal disease management. (Senior level) 2. Present anterior segment cases in weekly academic sessions and participate in related research projects. (Junior and senior level)

Professional

Competencies	Enabling Competencies
▪ P 1: Demonstrate professionalism in surgical and clinical care ▪ P 2: Recognize limitations ▪ P 3: Maintain ethical standards	1. Demonstrate integrity, empathy, and responsibility in patient interactions. (Junior and senior level) 2. Seek supervision for simple and advanced surgical steps. (Junior and senior level) 3. Ensure transparency in risk discussions, surgical complications, and patient expectations. (Junior and senior level)

VIII. CONTINUUM OF LEARNING

This section outlines the progressive learning that occurs during residency training in the field of ophthalmology. It emphasizes the gradual development of knowledge, clinical and surgical skills, professionalism, decision-making, and teaching responsibilities as residents advance from junior to senior levels. Trainees are reminded of the importance of lifelong Continuous Professional Development (CPD) to meet the evolving demands of their profession.

Domain	R 1–2 (Junior Level)	R 3–4 (Senior Level)	Board-Certified Ophthalmologist
Level of Practice	Dependent/supervised practice	Semi-dependent/supervised practice	**Independent/unsupervised practice**
Knowledge	Acquire fundamental knowledge related to core ophthalmic problems (e.g., anatomy of the eye, refraction, common ocular diseases)	Apply knowledge to provide appropriate clinical care and develop management plans for core ophthalmic problems	Practice and teach comprehensive ophthalmic care including diagnosis, prevention, and management of core ophthalmic problems
Clinical Skills	Learn and practice core ophthalmic skills such as visual acuity testing, refraction, slit-lamp examination, fundus examination, basic ocular imaging, and assisting in surgical procedures	Independently perform and interpret comprehensive ophthalmic examinations, manage ocular imaging and diagnostics, and progressively perform ophthalmic surgeries under supervision	Independently manage a spectrum of simple and complex ophthalmic conditions by providing comprehensive medical and surgical care and taking responsibility for patient outcomes.
Professionalism and Patient Safety	Demonstrate professionalism, ethical behavior, and commitment to patient safety in supervised clinical settings	Apply principles of professionalism and patient safety in more independent scenarios, including surgical care and complex case management	Serve as a leader and role model by demonstrating the highest standards of professionalism, ethics, and patient safety.
Decision-Making	Contribute to clinical decisions under supervision	Make clinical decisions with oversight in complex or high-stakes scenarios, including surgical and subspecialty cases	Independent judgement for clinical and surgical decisions by tailoring a therapeutic plan, managing complications, and guiding long-term care.
Supervision/Teaching Role	Learn through supervision, accept	Provide peer teaching, case presentations, and feedback	Assuming responsibility for the educational and

Domain	R 1–2 (Junior Level)	R 3–4 (Senior Level)	Board-Certified Ophthalmologist
	feedback, and begin to assist peers in basic skills	to junior residents and medical students under faculty supervision	professional development of trainees and junior staff by being a supervisor, mentor, and role model in academic and clinical environments.

IX. EDUCATIONAL ACTIVITIES (TEACHING AND LEARNING STRATEGIES AND METHODS)

Teaching and Learning

Clinical, Academic, and Scholarly Content of the Program-Specific Learning Activities

The ophthalmology residency program used a blended competency-based approach that integrated formal teaching, self-directed learning, and supervised clinical practice across outpatient clinics, emergency settings, wards, operating rooms, and simulation environments. Educational methods were selected to support the mastery of knowledge, skills, and attitudes aligned with program competencies (e.g., Medical Expert, Communicator, Collaborator, Leader/Manager, Health Advocate, Scholar, Professional). The principles of adult learning include active participation, case-based discussions, deliberate practice, feedback-driven improvement, reflective learning, and structured mentorship. The program administration allocates time to key educational activities. Routine clinical encounters (ER, wards, clinics, and OR) are intentionally used as teaching opportunities, and residents are supported in pursuing scholarly work and professional growth through training.

Educational Activities

Educational Activities (EA) are part of a trainee training program involving teaching and learning activities to acquire specialty competencies. EA conveys knowledge, skills, attitudes, and professional behaviors. Therefore, they should focus on holistic development, practical skills, problem-solving abilities and personal growth.

Furthermore, this study can be conducted within a broader scope to assist learning and growth across multiple cognitive, social, emotional, and physical domains. These activities include experiential learning, group projects, skill-building exercises and mentoring programs. These activities can be conducted in both formal and informal educational settings.

The educational framework of the ophthalmology residency training program is based on the principles of adult learning theory. Trainees are expected to recognize the significance of their learning journey and assume an active role in both the content and processes of education and learning. Training programs implement the adult learning concept across most EA, placing the responsibility for learning requirements on the trainees themselves.

Through various EA, the ophthalmology residency program aims to fulfill the competencies outlined in the curriculum. The program was designed to develop both cognitive and technical skills while fostering an understanding of their application within the context of the ophthalmology residency program. Furthermore, training encompasses practical procedures and interpretative techniques delivered sequentially and integrated through lectures, tutorials, seminars, and hands-on apprenticeships.

EA plays a vital role in ophthalmology residency programs by providing healthcare professionals with essential knowledge, values, and skills. Additionally, EA facilitates the dissemination of knowledge, encourages healthy practices, and enhances the competencies of health professionals, ultimately contributing to improved overall well-being and safety.

Program administration should actively support EA by ensuring that protected time is allocated for trainees to attend and participate. Trainees should be encouraged to engage meaningfully in educational and scholarly activities as part of their professional development. The program's EA encompasses the following themes:

1. Academic Activity

2. Practical-Based Learning
3. Skills Training and Procedures
4. Scholarly Projects
5. Professional and Personal Development

1) Academic Activity

Academic activities provide residents with structured opportunities to acquire core ophthalmological knowledge. These include the Basic Science Course (BSC), specialty topics, and academic forums such as weekly Grand Rounds, case presentations, and morbidity and mortality reviews.

Methodologies:

- BSC: Eight-week compulsory course conducted at the start of residency. Setting: Classroom and Interactive Workshops. Trainee role: Active attendance, formative assessment, and participation.
- Specialty Topics: Weekly structured lectures throughout residency. Setting: Lecture hall. Trainee role: Prepares in advance, actively attends and engages in discussions, and integrates knowledge into the clinical care. (Appendix C)
- Weekly Grand Rounds: These are held once a week, focusing on case-based discussions and new advances. Setting: Lecture hall. Trainee role: Active attendance and participation in dialogue with faculty members.
- Case Presentation: Conducted weekly. Setting: Lecture hall. Trainee role: Present and critically analyze cases, apply imaging and diagnostics, and propose management.
- Morbidity and Mortality Reviews: Scheduled quarterly. Setting: Academic conference setting. Trainee role: Present adverse cases, analyze contributing factors, and suggest system-level improvements.
- An imaging review conference (e.g., optical coherence tomography, biometry, corneal topography, and fundus fluorescein angiography) was conducted quarterly.

Setting: Lecture hall. Trainee role: Active attendance, interpretation of images, explanation of clinical relevance, and comparison of findings with faculty.

- The minimum required attendance for the aforementioned academic activities was at least 70% versus 75% for the academic year.

2) Practical-Based Learning

Practical learning emphasizes real-world clinical problem-solving and links theoretical knowledge to patient care. This included case-based discussions, imaging review sessions, and learning applied to clinical services.

Methodologies:

- Weekly Case-Based Discussions during the subspecialty rotations. Setting: Clinical or ward rounds. Trainee role: Present active cases, formulate differential diagnoses, and propose management strategies.
- Imaging Review Clubs (e.g., optical coherence tomography, biometry, corneal topography, and fundus fluorescein angiography): Conducted monthly. Setting: Seminar room or imaging laboratory Trainee role: Active attendance, interpretation of images, explanation of clinical relevance, and comparison of findings with faculty.
- Integrated Learning in Clinics and Wards: Daily, embedded in patient care. Setting: Outpatient clinics and inpatient wards. Trainee role: Assess patients, perform ophthalmic examinations, propose investigations, and review management plans with supervisors.

3) Skills Training and Procedures

Skill training develops diagnostic and surgical competencies, beginning with simulations and progressing to supervised, patient care.

Methodologies:

- Microsurgical and Wet-Lab Training: Scheduled during the first year and repeated as refreshers. Setting: Simulation/wet laboratory. Trainee role: Tissue handling,

suturing, microscope setting, wound construction, and cataract extraction under supervision.

- Basic and Advanced Cataract Surgery Simulation Courses: Conducted in blocks (typically 3 days) reinforced by computer-based simulators. Setting: Surgical skills laboratory. Trainee role: Complete graded modules, practice complication management, and perform procedures under supervision.
- Ophthalmic Laser Workshops: Half-day courses delivered annually. Setting: Laser suites or simulation units. Trainee role: Learning patient preparation, performing simulated laser procedures, and managing complications.
- Diagnostic Tutorials (corneal topography, visual field analysis, electrophysiology, and ultrasound): half-day sessions scheduled during rotations. Setting: Diagnostic laboratory. Trainee role: Operating machines, interpreting results, and applying findings to clinical cases.
- Surgical Training in the Operating Room: Daily during surgical rotations. Setting: Operating theatre. Trainee role: Assists in surgery, performs supervised surgical steps, and progressively advances to the complete procedure.

4) Scholarly Projects

Scholarly projects cultivate research skills, critical thinking, and commitment to evidence-based practice. Each resident was expected to complete the project during training.

Methodologies:

- Research Orientation and Methodology Training: Formal sessions were scheduled early in the training. Setting: Classroom or online modules. Trainee Role: Understanding Research Design, Ethics and Statistics.
- Completion of the Mandatory SCFHS Research E-module: Conducted early in training. Setting: SCFHS online platform. Trainee role: Complete the required learning materials and end-of-module evaluations.

- Supervised Thesis Project: Longitudinal throughout the residency. Setting: Clinical and Research Environments. Trainee role: Identify research question, design study, collect/analyze data, prepare abstract or manuscript for submission, and evaluate by a designated committee.
- Presentation and Dissemination: At least once during training at local or regional conferences. Trainee role: Delivers oral or poster presentations and responds to audience questions. (Appendix E)

5) Professional and Personal Development

Professional development involves communication, teamwork, ethics, well-being and leadership. This ensures that residents become reflective practitioners and leaders.

Methodologies:

- Mentorship Program: Longitudinal throughout residency. Setting: Scheduled one-on-one mentor–mentee meetings. Trainee role: Set goals, reflect on progress, and seek guidance.
- Reflective Portfolios: Maintained across training. Setting: Online Logbook. Trainee role: Document clinical experiences, surgical logs, reflective entries, and feedback responses.
- Leadership Roles: Chief residency, committee membership, and teaching junior trainees. Setting: Program governance and academic events. Trainee role: Leads academic sessions, contributes to scheduling, and represents peers.
- Ethics and Professionalism Seminars Held Two Times Annually. Setting: Lecture/seminar. Trainee role: Participates actively and reflects on case-based scenarios.

Universal Topics

Universal topics are EA developed by the SCFHS and are intended for all specialties. Topics related to these qualities are prioritized.

- High value
- Interdisciplinary and integrated
- Expertise that is potentially beyond the availability of the local clinical training sites

Universal topics were developed by the SCFHS and are available through e-learning via personalized access to each trainee (to access the online modules). Each universal topic is self-assessed at the end of the module. Universal topics will be distributed throughout the training period.

Table of Universal Topics Distributed over Training Years

Training Year	*Modules*		Topics name	
	Number	Name	Number	Name
R1	Module 1	Introduction	Topic 1	Safe drug prescribing
	Module 1	Introduction	Topic 2	Hospital acquired infections
	Module 1	Introduction	Topic 4	Antibiotic Stewardship
	Module 1	Introduction	Topic 5	Blood transfusion
	Module 7	Ethics and healthcare	Topic 33	Patient advocacy
R2	Module 2	Cancer	Topic 6	Principles of cancer management
	Module 5	Acute care	Topic 21	Pre-operative assessment
	Module 5	Acute care	Topic 22	Post-operative care
	Module 3	Diabetes and metabolic disorders	Topic 11	Recognition and management of diabetic emergencies
	Module 3	Diabetes and metabolic disorders	Topic 12	Management of diabetic complications
R3	Module 4	Medical and surgical emergencies	Topic 15	Management of acute chest pain
	Module 4	Medical and surgical emergencies	Topic 16	Management of acute breathlessness
	Module 2	Cancer	Topic 7	Side effects of chemotherapy and radiation therapy
	Module 2	Cancer	Topic 10	Surveillance follow-up of patients with cancer
	Module 5	Acute care	Topic 23	Acute pain management
R4	Module 6	Frail Older Adults	Topic 29	Prescribing drugs in older adults

Training Year	Modules		Topics name	
	Number	Name	Number	Name
	Module 7	Ethics and healthcare	Topic 31	Occupational hazards of Healthcare Worker (HCW)
	Module 7	Ethics and healthcare	Topic 34	Ethical issues: transplantation/organ harvesting; withdrawal of care
	Module 7	Ethics and healthcare	Topic 35	Ethical issues: treatment refusal; patient autonomy
	Module 5	Acute care	Topic 24	Chronic pain management

Simulation:

As a national supervisory body, the SCFHS initiated a move toward integrating simulations into residency training programs.

Medical simulations involve the creation of artificial clinical scenarios in which trainees can learn. This process has educational advantages, such as learning and practicing how to deal with rare and/or high-risk clinical scenarios and rare procedures while practicing in a controlled, standardized environment with immediate, effective feedback that significantly impacts knowledge, skills, and attitude.[8–11]

The scenarios for the simulation must be as close to actual clinical situations as possible, including team members, equipment, and environment, followed by timely and effective feedback. According to McGaghie et al., effective feedback has three key components: planning, prebriefing, and feedback provision.[12]

In ophthalmology, simulation is an integral tool for developing surgical skills safely and progressively before performing the procedures. Simulation-based training was delivered in dry (using advanced virtual reality simulators such as EyeSi for phacoemulsification steps, capsulorhexis practice, EyeSi vitreoretinal simulator, artificial eyes, microsurgical suturing, and complication management) and wet laboratories (using animal or donor eyes for procedures such as corneal suturing,

strabismus surgery, scleral tunnel creation, capsulorhexis, intraocular lens insertion, and wound closure).

Simulation provides residents with repeated opportunities to practice key microsurgical skills, such as instrument handling, tissue manipulation, and fine suturing, under faculty supervision with structured feedback. Workshops and short courses are scheduled throughout residency to reinforce skill acquisition and ensure competency in high-risk or rare surgical scenarios (e.g., posterior capsule rupture and traumatic globe repair).

By integrating simulations into ophthalmology training, residents progressively develop technical precision, intraoperative decision-making skills, and confidence, thereby enhancing patient safety and surgical outcomes.

X. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessments play a vital role in postgraduate training success. It guides trainees and trainers in achieving the defined standards, learning outcomes, and competencies. Simultaneously, assessment provides valuable feedback to learners and faculty regarding curriculum development, teaching methods, and the overall quality of the learning environment. Reliable and valid assessments are essential to ensure alignment between curriculum objectives, learning methods and assessment tools. The assessment assures patients and the public that health professionals are safe and competent.

Assessment serves several purposes:

- **Assessment for learning (Formative Assessment):** Trainers use information from trainees' performance to diagnose learning needs and tailor instructions for improvement. This process delivers timely, specific, and constructive feedback, fosters reflection, supports self-directed learning, and develops lifelong learning habits.
- **Assessment of learning (Summative Assessment):** Summative assessments evaluate whether trainees have achieved their intended learning outcomes. They are typically scored and contribute to high-stakes decisions, including the progression, certification, and completion of the training.
- **System of Assessment (Program of Assessment):** This represents the integration of multiple assessment methods into a comprehensive framework.

This aligns with the formative and summative approaches to curriculum competencies and outcomes. Assessment mapping ensures that different tools collectively provide balanced evidence of competence and helps identify gaps that require improvement.

- **Feedback and Evaluation:** Feedback is a core outcome of the assessment process and enhances the learning experience. High-quality feedback should be specific, actionable, and continuous, enabling structured action plans, supporting deliberate practice, and guiding trainees' progress.

For clarity and organization, assessments within the curriculum are classified into two main categories: formative and summative.

2. Formative Assessment

2.1 General Principles

Formative assessment is an essential component of the ophthalmology residency curriculum. It is integrated throughout the training and aligned with the competencies required by an ophthalmologist. The aim was to actively support the growth of residents by guiding learning, verifying progression, and ensuring the acquisition of knowledge, clinical and surgical skills, and professional behaviors necessary for safe and effective practice.

Purpose of formative assessment:

Formative assessment serves several purposes. It provides residents with opportunities to practice in clinical and surgical settings, receive timely and constructive feedback, measure their performance, and identify areas for improvement. It clarifies expectations and motivates residents to pursue learning experiences that strengthen their clinical judgment, technical ability, and professional development. It generates comprehensive evidence of progress toward meeting curriculum standards and confirms that performance is appropriate for residents' stage of training.

As adult learners, residents are expected to play an active role in their development. They should seek feedback, reflect on their performance, and apply recommendations to improve their practice as they progress from novice to master's. Formative assessments are deliberately distributed throughout the academic year to ensure that feedback is continuous, meaningful, and actionable.

To support this process, residents regularly meet with their program directors or faculty supervisors to review their performance reports, logbooks, and workplace-based assessment results. These inputs are integrated at the end of each year to guide decisions regarding progression to the next level of training.

Formative assessment in ophthalmology is multisource, drawing on various workplace-based and academic assessments, and comprehensive, addressing all domains of competence: knowledge, clinical skills, and professional behavior.

2.2 Formative Assessment Tools

2.2.1 Work-based assessment (WBA):

1. Mini-Clinical Evaluation Exercise (mini-CEX)

- Aim: To evaluate performance during focused patient encounters, including history taking, examination, communication and decision-making.
- Expectations: Residents should demonstrate progressive improvements in efficiency, accuracy, and professionalism.
- Frequency: 2–3 encounters per rotation across various training levels. A minimum of six evaluations per academic year across all rotations.

2. Direct Observation of Procedural Skills (DOPS)

- Aim: To assess procedural and surgical competence in a supervised setting.
- Expectation: Residents progressively perform diagnostic and surgical procedures, such as corneal suturing, phacoemulsification, and laser treatments, with increasing independence.
- Frequency: Minimum of six DOPS per academic year across different rotations and procedures. Different procedures for each academic year or the same procedure with progressive complexity are appropriate for the level of training.
- Procedural skills to be assessed: ECCE + IOL, Phaco + PCIOL, Ocular trauma/ruptured globe repair, vitreous tap, filtering procedures (± cataract surgery), DCR, enucleation/evisceration, entropion repair, probing ± stent, strabismus surgery, intravitreal injection, chalazion removal, tarsotomy, tarsorrhaphy, conjunctival flap, hyfercation, superficial corneal FB removal, YAG PI, YAG capsulotomy, cyclophotocoagulation, retinal PRP, and retinal focal laser.

4. Surgical Logbook and Log Review

- Objective: To document the surgical exposure and disease progression.
- Expectation: Residents must maintain an accurate, up-to-date surgical log verified by supervisors to demonstrate the attainment of the expected surgical milestones both as the main surgeon and as 1st assistant.
- Frequency: Reviewed semi-annually by the program director. Reviewed and assessed after training.

5. Multisource Feedback (MSF/360° Evaluation)

- Aim: To provide feedback on professionalism, teamwork, and communication from multiple sources (faculty, peers, nurses, and allied health staff).
- Expectations: Residents should consistently demonstrate professional behavior, collaboration and respect.
- Frequency: Conducted annually.

2.2.2 Educational Activity (Non-WBA)

1. Case Presentations and Grand Rounds

- Aim: To assess residents' abilities to present cases, interpret findings and engage in academic discussions.
- Expectation: Presentation must be evidence-based, structured, and clinically relevant. Active participation in discussions is expected.
- Frequency: Minimum of two formal case presentations per year during weekly academic activities; attendance at grand rounds is mandatory.

2. Weekly Quizzes

- Aim: To reinforce knowledge gained from grand rounds and subspecialty lectures and ensure continuous engagement with the material taught.
- Expectations: All residents must participate. Each quiz is scored out of five and contributes to formative assessment. A minimum of 100 items is required per academic year.
- Frequency: Conducted weekly during grand rounds and subspecialty lectures.

3. Morbidity and Mortality Presentations

- Aim: To foster reflection on complications and adverse outcomes and promote system-based improvements.
- Expectation: Residents should analyze the contributing factors and propose preventive strategies.
- Frequency: At least one presentation during their residency, with mandatory attendance at all the sessions.

4. Research

- Aim: To encourage scholarly activities and develop research skills.
- Expectation: Each resident must complete at least one research or scholarly project during their residency, culminating in a presentation or publication, to be evaluated by a designated committee at the end of the residency.

- Completion of the mandatory SCFHS research E-module: Conducted early in the training. Setting: SCFHS online platform. Trainee role: Complete the required learning materials and end-of-module evaluations.
- Frequency: Longitudinal throughout residency, with annual progress reviews.

All formative assessment tools used for formative assessment purposes MUST abide by the **Scoring Categories and Scaling Definitions** in the SCFHS policies.

Doesn't Meet Expectation	Borderline	Meets Expectation	Exceeds Expectation
(<50%)	(50–69.99%)	(>70–89.99%)	(>90%)

To attain optimum training outcomes, the candidate must complete the compulsory requisition of all selected formative assessment tools.

The following tables describe the formative assessment tools used in the ophthalmology residency program, including their aims, expectations, and frequencies of use. These tables provide a structured overview of how different tools are applied to training activities. Appendix B provides information on the assessment mapping.

Ophthalmology

Formative Assessment

Gen./Sub.	Level	Knowledge				Skills						Attitude
		SOE	EYPT-n't	Academic Activities	EYPT-Local	OSCE/OSPE	Research	DOPS	Logbook	Volunteering	Mini-CEX	ITERS
Ophthalmology	R1			√	√			√			√	√
	R2			√	√			√			√	√
	R3	√		√	√	√	√*	√			√	√
	R4	√		√		√	√**	√			√	√

SOE: Structured Oral Exam; EYPT-n't: International Exam; EYPT-Local: promotion exam or progress test;

DOPS: Direct observation of procedural Skills; OSCE: Objective Structured Clinical Examination;

OSPE: Objective Structured Practical Examination; Mini-CEX: Mini-Clinical Evaluation Exercise; ITER: In-Training Evaluation Report

*Completion of the required SCFHS research E-Module on the SCFHS online platform.

**Completion of thesis project presentation and evaluation.

Description Table of Formative Assessment Tools

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/Academic Year)
Knowledge	Academic Activities	(R1–R4): Residents are required to attend all scheduled academic activities, including weekly subspecialty lectures and grand rounds. Residents must maintain a minimum attendance rate of 75% for all scheduled activities unless formally excused by the program director. (Detailed topics can be found in Appendix C)
	Weekly Quizzes	(R1–R4): Weekly quizzes are conducted during the grand rounds and subspecialty lectures. All residents must participate. Each quiz is scored out of 5 marks and contributes to the formative assessment. A minimum of 100 items must be completed per academic year.
Skills	Research	(R1–R4): Each resident is required to conduct one research project during their training. The project is longitudinal across residency and includes: R1: Planning, hypothesis development, proposal writing, and approval. R2: Data collection and presentation of progress. R3: Data analysis and manuscript drafting. R4: Completion of study, submission to a peer-reviewed journal at least 3 months before final exams, presentation at a scientific meeting, and evaluation of the thesis by a designated committee.
	Logbook	(R1–R4): Residents must complete a surgical and procedural logbook throughout the training. The minimum requirements are as follows: Major Surgery: • ECCE + IOL: 5 cases (≥2 as main surgeon) • Phaco + PCIOL: 120 cases (≥80 as main surgeon) • PKP/LKP: ≥6 cases (as assistant) • Ocular trauma/ruptured globe repair: 8 cases (≥4 as main surgeon)

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/Academic Year)
		• Vitreous tap: ≥2 cases (as main surgeon) • Filtering procedures (± cataract surgery): 20 cases (≥5 as main surgeon) • DCR: 10 cases (≥3 as main surgeon) • Enucleation/Evisceration: 8 cases (≥2 as main surgeon) • Ptosis surgery: 10 cases (assistant) • Entropion repair: 6 cases (≥3 as main surgeon) • Probing ± stent: 10 cases (≥5 as main surgeon) • Strabismus surgery: 40 cases (≥20 as main surgeon) • Vitreoretinal surgery: 30 cases (assistant) • Intravitreal injection: ≥20 cases (as main surgeon) **Minor Surgery:** • Chalazion, tarsotomy, tarsorrhaphy, conjunctival flap, hyfrecation, superficial corneal FB removal: ≥50 cases (as main surgeon) **Laser Procedures:** • YAG PI: ≥10 cases (as main surgeon) • YAG capsulotomy: ≥10 cases (as main surgeon) • Cyclophotocoagulation: 10 cases (≥5 as main surgeon) • Retinal PRP: 60 cases (≥30 as main surgeon) • Retinal focal laser: 15 cases (≥5 as main surgeon) Logbooks are reviewed every 6 months by the program director to ensure adequate diversity, progression, and competencies.

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/Academic Year)
		The logbook should be discussed with the program director every 6 months. Trainees are required to complete all logbook requirements in electronic systems. (Additional details for log cases are provided in Appendix D.)
	Mini-CEX	(R1–R4): Residents must complete Mini-CEX during the academic year with at least 6 satisfactory assessments.
	Direct Observation of Procedural Skills (DOPS)	(R1–R4): Residents are required to complete a minimum of four DOPS per academic year across different ophthalmic procedures, covering diagnostic and surgical skills. Each DOPS must be assessed and documented by the faculty, with feedback provided immediately after the procedure.
Attitude	ITER	(R1–R4): ITERs must be completed at the end of each rotation. ITERs are used as end-of-rotation evaluations and follow SCFHS policies and criteria.
	Multisource Feedback/360° Evaluation (MSF)	(R2–R4): One MSF per year is required, providing structured feedback from consultants, peers, nurses, and allied health care staff.

Evaluation

2.3. Promotion of the trainee:

Promotion from one level to the next in the ophthalmology residency program will be determined in accordance with the SCFHS regulations and bylaws. Advancements depend on the successful completion of formative assessments and educational activities, submission of evaluation forms, and satisfactory performance during clinical rotations. Ophthalmology-specific requirements, such as maintaining a surgical

logbook and achieving minimum procedural numbers, must be fulfilled. In addition, residents were required to pass a promotional written examination at the end of R1, R2, and R3. Professionalism, academic engagement, and improvement in surgical and clinical skills are essential for progression. Any assigned remediation or corrective action plans must be successfully completed before promotion is granted. Failure to meet these requirements may result in actions under SCFHS regulations, which can include repeating a part of the academic year or, in certain cases, the entire training year.

2.4. Final In-Training Evaluation Report

The Final In-Training Evaluation Report (FITER) is a comprehensive summative report completed at the end of residency to determine the readiness for independent ophthalmology practices. It consolidates performance across all years of training, including knowledge, clinical competence, surgical and procedural skills, professional behavior, and participation in research and academic activities. The FITER format and content are governed by SCFHS regulations and may be updated in line with national standards. Submission of a satisfactory FITER is mandatory for residents to be eligible for final certification and specialty exit examinations in ophthalmology.

3. Summative Assessment

3.1 General Principles

The summative assessment in the ophthalmology residency program was designed to make high-stakes decisions regarding a trainee's competence and readiness to progress or enter independent practice. Unlike formative assessment, its primary purpose is not to provide feedback but to determine whether the resident has achieved the required standards. For additional details, trainees and faculty members should refer to the General Bylaws and Executive Policy of Assessment available on the SCFHS website (www.scfhs.org).

To be eligible for the final examinations, residents must first obtain a Certification of Training Completion, confirming the successful completion of all required rotations, assessments, and program requirements in accordance with SCFHS regulations.

3.2 Certification of Training-Completion

The Certification of Training Completion confirms that a resident has fulfilled all program and SCFHS requirements and is eligible for the final examination. This includes the successful completion of all clinical rotations, academic and surgical requirements, formative and summative assessments, research, and any additional components mandated by the SCFHS. The certification is issued and approved by the supervisory committee or its equivalent, in accordance with SCFHS policies.

3.3 First Part Examination

The First Part Examination is a written examination required for progression from the junior residency level (R1–R2) to the senior residency level (R3–R4). The examination evaluates a resident's knowledge of basic ophthalmic sciences and the foundations of clinical ophthalmology, ensuring adequate preparation for advanced clinical and surgical training.

The examination blueprint, eligibility criteria, and administration are governed by SCFHS policies and are periodically updated. The most recent version of the exam blueprint and regulations can be found on the SCFHS website (www.scfhs.org). A detailed blueprint of ophthalmology is provided in Appendix A.

Blueprint Outlines: The following example is provided for illustrative purposes: Please refer to the updated version of the SCFHS website.

3.4 Final Specialty Examinations

The Final Specialty Examination is a summative assessment that determines eligibility for certification as a specialist in ophthalmology. It comprises two components.

a) Final Written Examination: Residents were eligible to sit for this exam after receiving a Certification of Training Completion. The written examination evaluates

comprehensive ophthalmic knowledge, including subspecialties, clinical reasoning, and evidence-based practices.

b) Final Clinical/Practical Examination: Eligibility for this exam requires successful completion of the final written examination. The clinical component consisted of objective structured clinical examination (OSCE/OSPE) and structured oral examination (SOE) stations, as outlined in the SCFHS Examination Blueprint. These components assess residents' abilities to apply knowledge, perform clinical and diagnostic skills, interpret findings, and demonstrate appropriate patient management in the field of ophthalmology.

Blueprints, detailed content outlines, and updated regulations for both components were published by the SCFHS and are accessible on the SCFHS website (www.scfhs.org). A detailed blueprint of ophthalmology is provided in Appendix A.

For additional details on the final examinations, please refer to the general bylaws of training in postgraduate programs and general assessment bylaws (available online: www.scfhs.org).

Learning Domain	Summative Assessment Tools	Passing Score
Knowledge	- Final Written Examination	At least borderline pass in each tool according to the standard setting method used by the executive administration of assessment
Skills	- Objective Structured Clinical Examinations (OSCE) - Structured Oral Examinations (SOE)	At least borderline pass in each tool according to the standard setting method used by the executive administration of assessment
Attitude	FITER: In-Training Evaluation Report	Successfully pass FITER

XI. PROGRAM AND COURSE EVALUATION

The implementation of the ophthalmology residency curriculum will be monitored and evaluated by the SCFHS using the established quality assurance frameworks. The Central Training Committee of the SCFHS regularly reviews training outcomes to ensure alignment with national standards and international best practices in ophthalmology.

Trainee assessment results, including formative and summative evaluations, will be analyzed and mapped against the curriculum content to ensure that the learning objectives and competencies are met. Additional indicators contributing to the evaluation process are as follows:

- Annual resident satisfaction survey reports.
- Residents' evaluations of faculty members.
- Reports were gathered through direct field communication with residents and trainers.

Goal-based Evaluation: Achievement of the intended competencies will be reviewed at the end of each training stage to assess the effectiveness of curriculum delivery. The identified deficiencies will be addressed in subsequent stages using the allocated time for trainee-selected topics, professional development sessions and targeted faculty support.

The evaluation process will incorporate expert input from subject matter specialists in ophthalmology and draw on best practices from internationally benchmarked residency programs. The SCFHS will ensure that this curriculum remains responsive to new evidence and developments in ophthalmology and will integrate all relevant data during future revisions.

XII. POLICIES AND PROCEDURES

This curriculum outlines the means, materials, and learning objectives that trainees and trainers will use to achieve identified educational outcomes. The SCFHS maintains a comprehensive set of "General Bylaws of Training in Postgraduate Programs" and "Executive Policies" published on the official SCFHS website that govern all training-related processes in Saudi Arabia. These include, but are not limited to, general bylaws of training, assessment, and accreditation, as well as executive policies on admission, registration, formative assessment and promotion, examination, trainees' representation and support, duty hours, and leaves, all of which are examples of regulations that must be implemented. Under this curriculum, trainees, trainers, and supervisors are required to adhere to the most current versions of these bylaws and policies, which are accessible online through the official SCFHS website.

XIII. APPENDICES

A. Exams blueprint

B. Assessment Mapping

C. Academic Half-Day Topics

D. Logbook Requirements

E. Research Requirements

Appendix A: Exams Blueprint

Blueprint of written promotion exam (R1, R2, R3)

Blueprint Outlines		
No.	Section	Percentage
1	Anterior segment/Refractive surgery	16%
2	Glaucoma	10%
3	Retina	6%
4	Uveitis	6%
5	Pediatric Ophthalmology	13%
6	Oculoplastic	6%
7	Neuro-ophthalmology	6%
8	Comprehensive (Pathology, General Medicine)	16%
9	Emergency Ophthalmology (All specialties)	18%
10	Optics/Anesthesia	3%
Total		100%

Blueprint of clinical promotion exam (R3, R4)

No.	Sections (R3)
1	Anterior segment/Refractive surgery
2	Glaucoma
3	Retina and Uveitis
4	Pediatric Ophthalmology
5	Oculoplastic and Neuro-Ophthalmology
No.	**Sections (R4)**
1	Anterior segment/Refractive surgery
2	Glaucoma
3	Retina and Uveitis
4	Pediatric Ophthalmology

Blueprint of final written exam (R4)

Blueprint Outlines		
No.	Section	Percentage
1	Anterior segment (including Lens, Cornea, External eye, Optics, Refraction and Refractive surgery)	25%
2	Glaucoma	12%
3	Retina	15%
4	Pediatric Ophthalmology	15%
5	Oculoplastic	15%
6	Neuro-ophthalmology	10%
7	Uveitis	9%
Total		100%

Blueprint of final clinical exam (R4)

No.	Sections
1	Anterior segment (including Lens, Cornea, External eye, Optics, Refraction and Refractive surgery)
2	Glaucoma
3	Retina
4	Pediatric Ophthalmology
5	Oculoplastic
6	Neuro-ophthalmology
7	Uveitis

Appendix B: Competency-Assessment Mapping: to map Competencies, Educational Activities, and Formative and Summative Assessments (Systems of Assessment)

Assessment mapping

Example of an assessment mapping comprising a summary of the competencies, required assessment tools, and educational activities for all stages and levels.

Direct Curriculum Map

Saudi Ophthalmology Residency 2024

List of Competencies from each stage matched to all block rotations

	Oct Block 1	Nov Block 2	Dec Block 3	Jan Block 4	Feb Block 5	Mar Block 6	Apr Block 7	May Block 8	Jun Block 9	Jul Block 10	Aug Block 11	Sep Block 12
Stage	**R1**											
Rotation	BCSC	BCSC	ER	ER	OCU/NEU	OCU/NEU	COM	COM	COM	PED	PED	VACA
CANMeds Competency: Medical Expert			ME1, ME2, ME3		ME 23, ME 24, ME 25		ME4, ME5, ME6			ME7, ME8, ME9, ME10		
CANMeds Competency: Collaborator			COL1, COL2		COL3, COL4		COL3, COL4			COL5, COL6		
CANMeds Competency: Communicator			COM1, COM2		COM3, COM4		COM3, COM4			COM5, COM6, COM7		
CANMeds Competency: Health Advocate			HA1, HA2		HA3, HA4		HA3, HA4			HA5, HA6		
CANMeds Competency: Leader			LDR1, LDR2		LDR3, LDR4		LDR3, LDR4			LDR5, LDR6		
CANMeds Competency: Scholar			SCH1, SCH2		SCH3, SCH4		SCH3, SCH4			SCH5, SCH6		
CANMeds Competency: Professional			P1, P2		P3, P4		P3, P4			P5, P6		
Assement Tool	Summative End-of-Course Exam		ITER, DOPS, Mini-Cex		ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, Surgical LogBook, MSF/360° Evaluation			ITER, DOPS, Mini-Cex, LogBook		Promotion Exam
Non-Work-Based Assessments			Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes, M&M Meetings			Grand Rounds, Weekly Quizzes		
Rotation	**R2**											
	ER	ER	GLC	GLC	SRTN	MRTN	AS	AS	AS	PED	PED	VACA
CANMeds Competency: Medical Expert	ME1, ME2, ME3		ME 11, ME 12, ME 13, ME 14		ME 15, ME 16, ME 17, ME 18		ME 19, ME 20, ME 21, ME 22			ME7, ME8, ME9, ME10		
CANMeds Competency: Collaborator	COL1, COL2		COL7, COL8		COL9, COL10		COL11, COL12			COL5, COL6		
CANMeds Competency: Communicator	COM1, COM2		COM8, COM9, COM10		COM11, COM12, COM13		COM14, COM15, COM16			COM5, COM6, COM7		
CANMeds Competency: Health Advocate	HA1, HA2		HA7, HA8		HA9, HA10		HA11, HA12			HA5, HA6		
CANMeds Competency: Leader	LDR1, LDR2		LDR7, LDR8		LDR9, LDR10		LDR11, LDR12			LDR5, LDR6		
CANMeds Competency: Scholar	SCH1, SCH2		SCH7, SCH8		SCH9, SCH10		SCH11, SCH12			SCH5, SCH6		
CANMeds Competency: Professional	P1, P2		P7, P8, P9		P10, P11, P12		P13, P14, P15			P5, P6		
Assement Tool	ITER, DOPS, Mini-Cex		ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, Surgical LogBook, MSF/360° Evaluation			ITER, DOPS, Mini-Cex, LogBook		Promotion Exam, Part 1 Exam
Non-Work-Based Assessments	Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes, M&M Meetings			Grand Rounds, Weekly Quizzes		
Rotation	**R3**											
	ER	ER	GLC	OCU/NEU	OCU/NEU	COM	COM	AS	AS	SRTN	MRTN	VACA
CANMeds Competency: Medical Expert	ME1, ME2, ME3		ME 11, ME 12, ME 13, ME 14	ME 23, ME 24, ME 25		ME4, ME5, ME6		ME 19, ME 20, ME 21, ME 22		ME 15, ME 16, ME 17, ME 18		
CANMeds Competency: Collaborator	COL1, COL2		COL7, COL8	COL3, COL4		COL3, COL4		COL11, COL12		COL9, COL10		
CANMeds Competency: Communicator	COM1, COM2		COM8, COM9, COM10	COM3, COM4		COM3, COM4		COM14, COM15, COM16		COM11, COM12, COM13		
CANMeds Competency: Health Advocate	HA1, HA2		HA7, HA8	HA3, HA4		HA3, HA4		HA11, HA12		HA9, HA10		
CANMeds Competency: Leader	LDR1, LDR2		LDR7, LDR8	LDR3, LDR4		LDR3, LDR4		LDR11, LDR12		LDR9, LDR10		
CANMeds Competency: Scholar	SCH1, SCH2		SCH7, SCH8	SCH3, SCH4		SCH3, SCH4		SCH11, SCH12		SCH9, SCH10		
CANMeds Competency: Professional	P1, P2		P7, P8, P9	P3, P4		P3, P4		P13, P14, P15		P10, P11, P12		
Assement Tool	ITER, DOPS, Mini-Cex		ITER, DOPS, Mini-Cex, LogBook	ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, Surgical LogBook, MSF/360° Evaluation		ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, LogBook		Promotion Exam, Structured Oral Exam, OSCE/OSPE
Non-Work-Based Assessments	Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes	Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes, M&M Meetings		Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes		
Rotation	**R4**											
	ER	GLC	GLC	SRTN	MRTN	AS	AS	AS	PED	Elective	Elective	VACA
CANMeds Competency: Medical Expert	ME1, ME2, ME3	ME 11, ME 12, ME 13, ME 14		ME 15, ME 16, ME 17, ME 18		ME 19, ME 20, ME 21, ME 22			ME7, ME8, ME9, ME10	ME4, ME5, ME6		
CANMeds Competency: Collaborator	COL1, COL2	COL7, COL8		COL9, COL10		ME 19, ME 20, ME 21, ME 22			COL5, COL6	COL3, COL4		
CANMeds Competency: Communicator	COM1, COM2	COM8, COM9, COM10		COM11, COM12, COM13		ME 19, ME 20, ME 21, ME 22			COM5, COM6, COM7	COM3, COM4		
CANMeds Competency: Health Advocate	HA1, HA2	HA7, HA8		HA9, HA10		ME 19, ME 20, ME 21, ME 22			HA5, HA6	HA3, HA4		
CANMeds Competency: Leader	LDR1, LDR2	LDR7, LDR8		LDR9, LDR10		ME 19, ME 20, ME 21, ME 22			LDR5, LDR6	LDR3, LDR4		
CANMeds Competency: Scholar	SCH1, SCH2	SCH7, SCH8		SCH9, SCH10		ME 19, ME 20, ME 21, ME 22			SCH5, SCH6	SCH3, SCH4		
CANMeds Competency: Professional	P1, P2	P7, P8, P9		P10, P11, P12		ME 19, ME 20, ME 21, ME 22			P5, P6	P3, P4		
Assement Tool	ITER, DOPS, Mini-Cex	ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, LogBook		ITER, DOPS, Mini-Cex, Surgical LogBook, MSF/360° Evaluation			ITER, DOPS, Mini-Cex, LogBook	ITER, DOPS, Mini-Cex, LogBook		Part 2 Exam, Structured Oral Exam, OSCE/OSPE, Thesis Presentation
Non-Work-Based Assessments	d Rounds, Weekly Quizzes, Res	Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes		Grand Rounds, Weekly Quizzes, M&M Meetings		Grand Rounds, Weekly Quizzes		nd Rounds, Weekly Quizzes, Thesis Presenta		

Appendix C (Academic Half-Day Topics)

The following table lists sample topics illustrating half-day activities spanning over 1 year.

Academic Week	*Theme*	*Sessions*
1	Anterior Segment	Welcome to the Program
		Approach to Microbial Keratitis
		Approach to Herpetic Corneal Disease
2	Anterior Segment	Approach to Interstitial Keratitis
		Case-based study
		Approach to Corneal Ectasias (Keratoconus (KC), Pallucid Marginal Degeneration (PMD), Keratoglobus)
3	Anterior Segment	Approach to Cicatricial Conjunctivitis (Mucus Membrane Pemphigoid (MMP), Steven-Johnson Syndrome (SJS), Graft-versus-Host Disease (GVHD))
		Case-based study
		Approach to Peripheral Ulcerative Keratopathy
4	Anterior Segment	Journal club
		Case-based study
		Approach to Neurotrophic Ulcers and Persistent Epithelial Defects.
5	Anterior Segment	Approach to Ocular Surface Squamous Neoplasia (OSSN)
		Case-based study

Academic Week	*Theme*	*Sessions*
		Approach to Pigmented Conjunctival Lesions
6	Anterior Segment	Approach to Corneal Dystrophies
		Case-based study
		Approach to Corneal Transplant Complications
7	Anterior Segment	Approach to Correction of Refractive Errors
		Case-based study
		Management of Refractive Surgery Complications
8	Anterior Segment	Interpretation of IOL Calculation and Corneal Tomography
		Journal club
		Interpretation of Anterior Segment Ancillary Studies (AS-OCT, Specular microscopy, Confocal Microscopy)
9	Glaucoma	Clinical evaluation of glaucoma
		Case-based study
		Assessment and Gonioscopy common findings
10	Glaucoma	Perimetry principles and interpretation
		Journal club
		Humphry Visual Field (HVF) and Goldmann Visual Field (GVF) Interpretation
11	Glaucoma	Approach to Primary and Secondary Open angle glaucoma

Academic Week	*Theme*	*Sessions*
		Case-based study
		Interpretation of OCT Glaucoma
12	Glaucoma	Approach to Primary and Secondary Closed-Angle glaucoma
		Case-based study
		Interpretation of Ultrasound Biomicroscopy (UBM)
13	Glaucoma	Approach Pediatric Glaucoma
		Case-based study
		Common glaucoma surgeries (Deep Sclerectomy, Trabeculectomy, Tubes, minimally invased glaucoma surgery (MIGS)
14	Glaucoma	Approach to Management of Glaucoma Surgery complications
		Case-based study
		Journal club
15	Pediatric Ophthalmology	Pediatrics Examination and Orthoptic Evaluation
		Case-based study
		Approach to Glasses Prescription
16	Pediatric Ophthalmology	Approach to Esotropia
		Case-based study
		Approach to Exotropia

Academic Week	*Theme*	*Sessions*
17	Pediatric Ophthalmology	Approach to Special Forms of Strabismus (Duane Retraction Syndrome (DRS), Brown Syndrome, Monocular Elevation Deficit (MED))
		Case-based study
		Approach to Vertical Deviation
18	Pediatric Ophthalmology	Congenital Lens and Anterior Segment Disorders
		Journal club
		Approach to Aniridia
19	Pediatric Ophthalmology	Approach to Albinism
		Case-based study
		Retinal inherited disorders
20	Pediatric Ophthalmology	Approach to Capillary hemangioma
		Case-based study
		Neuro-oculocutaneous syndromes
21	Pediatric Ophthalmology	Congenital nystagmus
		Case-based study
		Extraocular muscle surgeries; indications, technique and complications
22	Pediatric Ophthalmology	Approach to Congenital Corneal lesions
		Journal club

Academic Week	*Theme*	*Sessions*
		Retinopathy of Prematurity
23	Retina	Diabetic Retinopathy
		Case-based study
		Approach to Retinal Vascular disease (Retinal Vein Occlusion (RVO), Retinal Artery Occlusion (RAO), Ocular Ischemic Syndrome (OIS), Hypertension Retinopathy)
24	Retina	Other Retinal Vascular diseases (Sickle-Cell Retinopathy, MacTel)
		Case-based study
		Interpretation of OCT Macula
25	Retina	Approach to Central Serous Chorioretinopathy (CSCR)
		Case-based study
		Approach to Age-related Macular Degeneration and Choroidal Neovascular Membranes (CNVM)
26	Retina	Interpretation of Fluorescein Angiography/Indocyanine Green angiography
		Journal club
		Diabetic Retinopathy Clinical Research Protocols
27	Retina	Hereditary Retinal Dystrophies
		Case-based study
		Hereditary Choroidal Dystrophies

Academic Week	*Theme*	*Sessions*
28	Retina	Interpretation of B-Scan
		Case-based study
		Approach to Choroidal Masses/Tumors
29	Retina	Congenital Lens and Anterior Segment Disorders
		Case-based study
		Approach to Aniridia
30	Retina	Retinal Degeneration Associated with Systemic Diseases
		Journal club
		Approach to and management of Retinal detachments
31	Uveitis	Approach to Anterior Uveitis
		Case-based study
		Approach to Episcleritis and Scleritis
32	Uveitis	Approach to Intermediate Uveitis
		Case-based study
		Approach to Posterior Uveitis
33	Uveitis	Approach to Panuveitis
		Case-based study
		Approach to Infectious uveitis (Toxoplasmosis, Syphilis, Toxocariasis)

Academic Week	*Theme*	*Sessions*
34	Uveitis	Approach to Herpetic necrotizing Retinitis (Acute Retina Necrosis (ARN), Progressive Outer Retinal Necrosis (PORN), Cytomegalovirus retinitis CMVR)
		Journal club
		Medications Used in Uveitis
35	Uveitis	Approach to White-Dot-Syndromes
		Case-based study
		Approach to Behcet Disease
36	Oculoplastic	Approach to Orbital and Preseptal Cellulitis
		Case-based study
		Approach to Dacryocystitis and Canaliculitis
37	Oculoplastic	Approach to Thyroid Eye Disease
		Case-based study
		Approach to Nonspecific Orbital Inflammation
38	Oculoplastic	Interpretation of computed tomography Scan
		Journal club
		Approach to Orbital and Eyelid Trauma
39	Oculoplastic	Approach to Lid Malposition Disorders
		Case-based study
		Approach to Facial Paralysis and Facial Dystonia

Academic Week	*Theme*	*Sessions*
40	Oculoplastic	Approach to Benign eyelid lesions
		Case-based study
		Approach to Malignant eyelid lesions
41	Oculoplastic	Approach to Lacrimal Gland Masses
		Case-based study
		Interpretation of magnetic resonance imaging
42	Oculoplastic	Approach to Vascular Tumors, Malformations, and Fistulas
		Journal club
		Approach to Acquired Nasolacrimal Duct Obstruction and Canalicular Obstruction
43	Oculoplastic	Evisceration and Enucleation
		Case-based study
		Approach to Anophthalmic Socket and Complications
44	Neuro-ophthalmology	Approach to Transient Visual Loss
		Case-based study
		Approach to Diplopia
45	Neuro-ophthalmology	Approach to Third Cranial Nerve Palsy
		Case-based study
		Approach to Fourth Cranial Nerve Palsy

Academic Week	*Theme*	*Sessions*
46	Neuro-ophthalmology	Approach to Sixth Cranial Nerve Palsy
		Journal club
		Approach to Idiopathic Intracranial Hypertension
47	Neuro-ophthalmology	Approach to Optic Neuritis
		Case-based study
		Approach to Pupillary Abnormalities
48	Neuro-ophthalmology	Approach to Anterior Ischemic Optic Neuropathy
		Case-based study
		Approach to Non-Arteritic Anterior Ischemic Optic Neuropathy
49	Neuro-ophthalmology	Approach to Nystagmus
		Case-based study
		Approach to Functional (Non-Organic) Vision loss
50	Neuro-ophthalmology	Approach to Illusions, Hallucinations, and Disorders of Higher Cortical Function
		Journal club
		Approach to Hereditary Optic Neuropathy

Appendix D (Logbook Requirements)

Top procedures and their minimal requirement as main surgeon and/or 1st assistant in the Specialty

Top Conditions and Procedures in the Specialty			
Major Procedures			
Procedure		Main Surgeon	Assistant
1.	Phaco + PCIOL	≥80	40
2.	ECCE + IOL	≥15	15
3.	PKP/LKP	-	≥6
4.	Open Globe Repair	≥4	4
5.	Vitreous Tap	≥2	-
6.	Filtering Procedures (± Cataract Surgery)	≥8	12
7.	Dacryocystorhinostomy	≥3	7
8.	Enucleation/Evisceration	≥2	6
9.	Ptosis Surgery	-	10
10.	Entropion Repair	≥3	6
11.	Proping ± Stenting	≥5	5
12.	Strabismus Surgery	≥15	25
13.	Vitreoretinal Surgery	-	30

Top Conditions and Procedures in the Specialty			
Major Procedures			
14.	Intravitreal Injection	≥20	-
Minor Procedures			
	Procedure	Main	Assistant
1.	Chalazion, Tarsotomy, Conjunctival flap, hyfercation, superficial corneal FB removal	≥50	-
LASER Procedures			
	Procedure	Main	Assistant
1.	YAG PI	≥10	-
2.	YAG Capsulotomy	≥10	-
3.	Cyclophotocoagulation	≥5	5
4.	Retinal PRP	≥30	30
5.	Retinal Focal LASER	≥15	15

Appendix E (Research Requirements)

2.2.6 RESEARCH ROTATION

Number of rotation months	First year	Second year	Third year	Fourth year	Total
	0	0	1	1	2

2.2.6.1 RESIDENTS' THESIS PRESENTATION TIMELINE DURING LAST YEAR OF TRAINING

October–November		
1.	o	Orientation on thesis requirements and guidelines.
2.	o	Assignment of research mentors/supervisors.
3.	o	Submission of thesis proposals for initial review by the residents.
December–January		
4.	o	Feedback on proposals provided by supervisors/committees.
5.	o	Residents finalize the research objectives and methodology.
6.	o	Institutional Review Board/Ethical Approval Submission (if applicable).
February–March		
7.	o	Data collection phase begins.
8.	o	Monthly progress meetings with supervisors.
April–May		
9.	o	Continuation of data collection and preliminary analyses.
10.	o	Mid-year progress presentations/check-in with the thesis committee.

June–July		
11.	o	Data analysis and interpretation.
12.	o	Drafting of the thesis results and discussion.
13.	o	Supervisors provide feedback on draft chapters.
August		
14.	o	Submission of complete thesis draft to supervisors/committees.
15.	o	Revisions based on feedback.
September		
16.	o	Final thesis submission.
17.	o	Formal residents' thesis presentations/defense to the committee.
18.	o	Feedback and grading.

MEDICAL EXPERT

Goals:

- To demonstrate the basic principles of research design, methodology, data analysis, and clinical epidemiology. Additionally, they have advantages and disadvantages from an ophthalmology perspective.
- Familiarize themselves with the ethical requirements of the research and demonstrate an understanding of the responsible use of informed consent.

- Practice appropriate methods for writing research proposals, manuscripts, data collection, and result analysis and discussion.
- To demonstrate awareness of current research topics in ophthalmology using available medical informatics systems.
- To skillfully present scientific presentations and participate in public discussions.

Training Methods

- Specify the period appropriately dedicated to research or full-time rotation of the research to be conducted.
- Attendance at dedicated courses or workshops that enhance research skills may be required for the program.
- This project is expected to last for 1 month. Therefore, the completion of this study should align with the subsequent rotations.
- The trainee must select a supervisor to help access essential resources that will allow the appropriate utilization of research skills and periodically discuss their progress.
- The trainee must finish the research proposal by the end of the first 6 months, which must be accepted by the Institutional Review Board.
- The oral abstract of the study results should be presented at a specified time point (e.g., the end of the final year before entering the final exam) on the Specialty Research Day.
- The research paper should be sent at least 2 weeks before the Specialty Research Day.
- It is highly desirable for trainees to present their research results at national and/or international meetings and publish their work in indexed journals.

Evaluation

1. Attendance at designated courses, lectures, workshops was monitored and incorporated into annual evaluation scores.

2. Panel scoring of the research abstract presentation is conducted at the end of the pre-specified year on the Specialty's Research Day. This counts toward the rotation score for that month.

COMMUNICATOR

- Demonstrate skills in conveying and discussing scientific research with scientific communities through posters, abstracts, teaching slides, manuscripts, or other scientific communication modalities.
- Communicate and collaborate effectively with the research supervisor to conduct research.

COLLABORATOR

- Identify, consult, and collaborate with appropriate experts, research institutions, and/or organizational bodies to conduct research.

LEADER

- Identify an area of research interest and find a research supervisor to engage in scholarship on scientific inquiry and its dissemination.
- Use available resources and regularly meet with an identified research mentor.
- Set realistic priorities and use time effectively to optimize professional performance.
- Use healthcare resources cost-effectively.

HEALTH ADVOCATE

Recognize the contributions of scientific research to improving patient and community health.

SCHOLAR

- Pose appropriate research questions, recognize and identify gaps in knowledge and expertise pertaining to the question, and formulate an appropriate study design to answer them.
- Conduct the research as outlined in the proposal.

- Collect and analyze data using appropriate methods.
- Prepare abstracts and manuscripts suitable for publication in peer-reviewed journals and/or international scientific meetings.
- Identify research limitations and areas for further research.

PROFESSIONAL

- Ethical and professional research expectations were consistent with the Institutional Review Board guidelines, including meticulous data maintenance and ethical research conduct.
- Demonstrate personal responsibility for establishing research goals and working with supervisors to set and achieve research timeline objectives.
- Appropriately attribute authorship and contributions when publishing research
- Disclose potential financial conflicts of interest (including speaker fees and consultative relationships) when engaging with and disseminating research results.

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