

Specialty Training Requirements (STR)

Name of Specialty:	Ophthalmology
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Date of submission:	6 November 2024

Contents

Scope of Ophthalmology	2
Purpose of the Residency Programme.....	2
Admission Requirements	2
Selection Procedures	2
Less Than Full Time Training	2
Non-traditional Training Route.....	3
Separation	3
Duration of Specialty Training	3
“Make-up” Training	3
Learning Outcomes: Entrustable Professional Activities (EPAs).....	4
Learning Outcomes: Core Competencies, Sub-competencies and Milestones.....	4
Learning Outcomes: Others	6
Curriculum	6
Learning Methods and Approaches: Scheduled Didactic and Classroom Sessions.....	7
Learning Methods and Approaches: Clinical Experiences	7
Learning Methods and Approaches: Scholarly / Teaching Activities.....	9
Learning Methods and Approaches: Documentation of Learning	9
Summative Assessments	10

Scope of Ophthalmology

Ophthalmology is a branch of medicine and surgery that deals with the diagnosis and treatment of disorders of the eye.

Purpose of the Residency Programme

The purpose of the Ophthalmology Residency Programme is to train proficient general ophthalmologists, and to provide a strong foundation for further subspecialisation. In order to prevent fragmentation of care within ophthalmology, fully trained ophthalmologists would be broad in medical knowledge, clinical assessment and diagnosis. In addition, they are expected to be proficient in the standard management of a broad repertoire of common conditions across different subspecialty areas. They are also expected to be proficient in the initial management for urgent and severe subspecialty conditions.

Admission Requirements

At the point of application for this residency programme,

- a) Applicants must be employed by employers endorsed by Ministry of Health (MOH), and
- b) Residents who wish to switch to this residency programme must have waited at least one year between resignation from his / her previous residency programme and application for this residency programme.

At the point of entry to this residency programme, residents must have fulfilled the following requirements:

- a) Hold a local medical degree or a primary medical qualification registrable under the Medical Registration Act (Second Schedule);
- b) Have completed Post-Graduate Year 1 (PGY1); and
- c) Have a valid Conditional or Full Registration with Singapore Medical Council (SMC).

Selection Procedures

Applicants must apply for the programme through the annual residency intake matching exercise conducted by Ministry of Health Holdings (MOHH).

Continuity plan: Selection should be conducted via a virtual platform in the event of a protracted outbreak whereby face-to-face on-site meeting is disallowed and cross institution movement is restricted.

Less Than Full Time Training

Less than full time training is not allowed. Exceptions may be granted by Specialist Accreditation Board (SAB) on a case-by-case basis.

Non-traditional Training Route

The programme should only consider the application for mid-stream entry to residency training by an International Medical Graduates (IMG) if he / she meets the following criteria:

- a) He / she is an existing resident or specialist trainee in the United States, Australia, New Zealand, Canada, United Kingdom and Hong Kong, or in other centres / countries where training may be recognised by the SAB
- b) His / her years of training are assessed to be equivalent to the local training by JCST and / or SAB.

Applicants may enter residency training at the appropriate year of training as determined by the Programme Director (PD) and RAC. The latest point of entry into residency for these applicants is Year 1 of the senior residency phase.

Separation

The PD must verify residency training for all residents within 30 days from the point of notification for residents' separation / exit, including residents who did not complete the programme.

Duration of Specialty Training

The training duration must be 60 months, comprising of 36 months of junior residency and 24 months of senior residency.

Maximum Candidature: All residents must complete the training requirements, requisite examinations and obtain their exit certification from JCST not more than 36 months beyond the usual length of their training programme. The total candidature for Ophthalmology is 60 months Ophthalmology residency + 36 months candidature.

“Make-up” Training

“Make-up” training must be arranged when residents:

- Exceed days of allowable leave of absence / duration away from training or
- Fail to make satisfactory progress in training.

The duration of make-up training should be decided by the Clinical Competency Committee (CCC) and should depend on the duration away from training and / or the time deemed necessary for remediation in areas of deficiency. The CCC should review residents' progress at the end of the “make-up” training period and decide if further training is needed.

Any shortfall in core training requirements must be made up by the stipulated training year and / or before completion of residency training.

Learning Outcomes: Entrustable Professional Activities (EPAs)

Residents must achieve level 4 of the following EPA by the end of residency training:

	Title
EPA 1	Managing common ophthalmic conditions in an ambulatory setting
EPA 2	Managing patients requiring laser procedures
EPA 3	Managing patients requiring clinic/treatment room procedures
EPA 4	Managing patients requiring elective surgery in Operating Theatre
EPA 5	Managing patients requiring emergency surgery
EPA 6	Managing common ophthalmic conditions in an emergency setting
EPA 7	Managing ophthalmic patients in an inpatient setting
EPA 8	Managing patients requiring ophthalmic consults in inpatient setting

Information on each EPA is provided in [here](#).

Learning Outcomes: Core Competencies, Sub-competencies and Milestones

The programme must integrate the following competencies into the curriculum, and structure the curriculum to support resident attainment of these competencies in the local context.

Residents must demonstrate the following core competencies:

1. Patient Care and Procedural Skills

1.1 Residents must demonstrate the ability to:

- (a) Gather essential and accurate information about the patient
- (b) Counsel patients and family members
- (c) Make informed diagnostic and therapeutic decisions
- (d) Prescribe and perform essential medical procedures
- (e) Provide effective, compassionate and appropriate health management, maintenance, and prevention guidance

1.2 Residents must demonstrate competence in the:

- (a) Technical and patient care responsibilities as the primary surgeon in the treatment of:
 - (i) Cataract
 - (ii) Strabismus
 - (iii) Cornea
 - (iv) Glaucoma, including performing glaucoma laser procedures
 - (v) Retina / vitreous
 - (vi) Oculoplastic / orbit
 - (vii) Globe trauma
- (b) Technical and patient care responsibilities in:
 - (i) Optics, visual physiology, and correction of refractive errors
 - (ii) Retinal and Uveal disease

- (iii) Neuro-ophthalmology
- (iv) Paediatric ophthalmology
- (v) Anterior segment disease
- (vi) Orbital disease
- (vii) Ophthalmic pathology
- (viii) Managing systemic and ocular complications that may be associated with surgery and anaesthesia
- (ix) Providing acute and long-term post-operative care
- (c) Intra-operative skills
- (d) The use of local anaesthesia and understanding the principles of general anaesthetic.

2. Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical clinical, epidemiological, and social-behavioural sciences, as well as the application of this knowledge to patient care.

Residents must demonstrate knowledge of the following topics:

- 2.1 Basic and clinical sciences specific to Ophthalmology
- 2.2 Optics, visual physiology, and correction of refractive errors
- 2.3 Retina, vitreous, and uvea
- 2.4 Neuro-ophthalmology
- 2.5 Paediatric ophthalmology and strabismus
- 2.6 External disease and cornea
- 2.7 Glaucoma, cataract, and anterior segment
- 2.8 Oculoplastic surgery and orbital diseases
- 2.9 Ophthalmic pathology

3. Systems-based Practice

Residents must demonstrate the ability to:

- 3.1 Work effectively in various health care delivery settings and systems relevant to their clinical specialty
- 3.2 Coordinate patient care within the health care system relevant to their clinical specialty
- 3.3 Incorporate considerations of cost awareness and risk/benefit analysis in patient care
- 3.4 Advocate for quality patient care and optimal patient care systems
- 3.5 Work in inter-professional teams to enhance patient safety and improve patient care quality. This includes effective transitions of patient care and structured patient hand-off processes.
- 3.6 Participate in identifying systems errors and in implementing potential systems solutions

4. Practice-based Learning and Improvement

- 4.1 Residents must demonstrate a commitment to lifelong learning.
- 4.2 Resident must demonstrate the ability to:
 - (a) Investigate and evaluate patient care practices
 - (b) Appraise and assimilate scientific evidence
 - (c) Improve the practice of medicine

- (d) Identify and perform appropriate learning activities based on learning needs

5. Professionalism

- 5.1 Residents must demonstrate a commitment to professionalism and adherence to ethical principles including the SMC's Ethical Code and Ethical Guidelines (ECEG).
- 5.2 Residents must:
 - (a) Demonstrate professional conduct and accountability
 - (b) Demonstrate humanism and cultural proficiency
 - (c) Maintain emotional, physical and mental health, and pursue continual personal and professional growth
 - (d) Demonstrate an understanding of medical ethics and law

6. Interpersonal and Communication Skills

- 6.1 Residents must demonstrate ability to:
 - (a) Effectively exchange information with patients, their families and professional associates.
 - (b) Create and sustain a therapeutic relationship with patients and families
 - (c) Work effectively as a member or leader of a health care team
 - (d) Maintain accurate medical records

Other Competency: Teaching and Supervisory Skills

Residents must demonstrate ability to:

- (a) Teach others
- (b) Supervise others

Learning Outcomes: Others

Residents must attend Medical Ethics, Professionalism and Health Law course conducted by Singapore Medical Association (SMA) and **Geriatric Medicine Modular Course by Academy of Medicine Singapore (AMS)**.

Residents must pass the following assessments before they are allowed to progress to the next residency year:

- R1: MMed (Ophth) Clinical Component 1 / FRCOphth Part 1
- R2: MMed (Ophth) Clinical Component 2 / FRCOphth Refraction Certificate
MMed (Ophth) Clinical Component 3 / FRCOphth Part 2a
- R3: MMed (Ophth) Clinical Component 3 / FRCOphth Part 2b

Curriculum

The curriculum and detailed syllabus relevant for local practice must be made available in the Residency Programme Handbook and given to the residents at the start of residency.

The PD must provide clear goals and objectives for each component of clinical experience.

Learning Methods and Approaches: Scheduled Didactic and Classroom Sessions

Junior Residency

1. In the junior residency, the educational programme must contain regularly scheduled didactic sessions that enhance and correspond to the residents' fundamental clinical skills education.
2. The following topics must be covered during the educational programme: Optics, visual physiology, and correction of refractive errors; Retina, Vitreous, and Uvea; Neuro-ophthalmology; Paediatric ophthalmology and strabismus; External disease and cornea; Glaucoma, Cataract, and Anterior segment; Oculoplastic surgery and orbital diseases; and Ophthalmic pathology.
3. There must be a structured and regularly scheduled series of teaching sessions on basic and clinical science.
4. There must be didactic sessions in practice management, ethics, advocacy, visual rehabilitation, and socioeconomics.
5. "Protected teaching time must be provided in the form of scheduled didactic and classroom sessions as well as weekly National Continuing Medical Education (CME) Residents' Teaching Sessions conducted by the Sponsoring Institutions (SI). Residents must complete at least 70% of these sessions.

Senior Residency

In addition to point Junior Residency point 5 (above), the programme must provide adequate teaching sessions including the following:

1. Didactics and tutorials including fundus angiogram and imaging round
2. Morbidity rounds
3. Grand rounds

Residents must complete the following courses by the end of residency:

1. SMA Ethics Course
2. Geriatric Medicine Modular Training Programme (2022 intake onwards)

In the event of cross-institution movement restrictions (e.g. pandemic) where face-to-face meeting is disallowed, the didactic sessions and courses should be conducted via virtual platforms.

Learning Methods and Approaches: Clinical Experiences

Residents must have the following clinical experiences:

Junior Residency

This experience must include a minimum of 32 months 1 week of direct patient care (*MOH guidelines: maximum of 38 days of days of absence per Academic year*) and commensurate with the residents' ability. Residents must have responsibility for decision-making and direct patient care in all settings, subject to review and approval

by senior-level residents and / or attending physicians, to include planning care and writing orders, progress notes, and relevant records.

Junior and Senior Residency

Residents should have a minimum of 30 hours of experience in gross and microscopic examination of pathological specimens through conferences and / or study sets in addition to their review of pathological specimens of their own patients with a pathologist who has demonstrated expertise in ophthalmic pathology throughout the 5 years of residency.

Senior Residency

A) Comprehensive ophthalmology:

Senior residents should have clinical assignments in providing longitudinal care to patients with multiple ophthalmic conditions, related or unrelated.

B) Sub-specialty Ophthalmology:

Senior residents should have clinical rotations (each of 4 months duration) to all of the following subspecialty areas in ophthalmology:

1. Cornea and Refractive Surgery
2. Glaucoma
3. Vitreoretinal diseases
4. Oculoplastics including the orbit
5. Paediatric Ophthalmology and Strabismus
6. Neuro-Ophthalmology

Residents should have ample opportunities to manage patients with one or more ophthalmic conditions in all of the above-listed subspecialty areas, focusing on the integration of clinical information, clinical judgement, application of medical knowledge, and integration of various competencies to deliver consistent and quality care as a general ophthalmologist.

Senior Residents should be able to diagnose a wide range of conditions across different sub-specialties. Senior residents should demonstrate the ability to provide standard treatment for most common ophthalmic conditions, provide initial therapy and refer complex ophthalmic conditions appropriately to the sub-specialist for complex ophthalmic conditions for further management.

Residents should have a longitudinal component of comprehensive care, with opportunities for residents to follow up with patients under their care. Residents should have at least 2 half-day sessions of subspecialty care per week on average over the 2 years. In the event of a pandemic, the programme should follow institutional policies with regards to continued clinical experience.

Cross cluster rotations

MOH-stipulated cross-cluster rotations (CCR) should take place during Senior Residency years (R4-R5). The CCR should comprise of a minimum of 2 sessions a week, for a minimum of 3-consecutive month duration. Core skills to be achieved during the CCR are determined according to the sub-specialty for which the CCR is scheduled.

Learning Methods and Approaches: Scholarly / Teaching Activities

Residents must participate in the following scholarly / teaching activities:

1. Journal clubs: (to take place during sub-specialty teaching rounds). Residents from all levels must be designated to present throughout their residency training. The sub-specialty specific teaching rounds should include:
 - Neuro-radiology and orbital teaching rounds
 - Paediatric Ophthalmology teaching rounds
 - Uveitis teaching rounds
 - Surgical video and Cataract teaching rounds
 - Neuro-ophthalmology teaching rounds
 - Vitreo-retinal teaching rounds (including fundus fluorescein angiography)
 - Oculoplastic teaching rounds
 - Glaucoma teaching rounds
 - Cornea teaching rounds
2. Grand ward round: Junior Residents must present cases for teaching purposes under the guidance of supervising consultants.

Residents are encouraged to participate in the following scholarly / teaching activities:

1. *Involvement in research projects A first-author publication is preferred.*
2. *Poster or oral presentations at local or international meetings*
3. *Quality, system improvement and audit*

In the event of a pandemic where face-to-face teaching is disallowed, teaching rounds and presentations should be converted to online platforms in order to allow such scholarly/teaching activities to continue. Research projects (clinical, scientific, quality-based) should be encouraged to continue where possible during pandemic measures.

Learning Methods and Approaches: Documentation of Learning

Residents must perform and log the minimum number of procedures listed below:

For Junior residents:		
Resident Role	Procedures	Targets
As Primary Surgeon	Cataract	80
	Laser Surgery - YAG Capsulotomy	5
	Laser Surgery - Laser Trabeculoplasty / Micropulse Transscleral Cyclophotocoagulation	5
	Laser Surgery - Laser Iridotomy	4
	Laser Surgery - Panretinal Laser Photocoagulation (PRP)	10
	Corneal Surgery - Pterygium/Conjunctival and other cornea	3
	Strabismus	5
	Glaucoma - Filtering/shunting procedures	5
	Intravitreal Injection	10
	Oculoplastic and orbit	25

	Oculoplastic and orbit - Eyelid Laceration	3
	Oculoplastic and orbit - Chalazia Excision	3
	Oculoplastic and orbit - Ptosis/Blepharoplasty	3
	Globe Trauma	4
As Primary Surgeon or First Assistant	Corneal Surgery - Keratoplasty	5
	Keratorefractive surgery	6
	Retinal Vitreous	10

For Senior residents:

No.	Procedures	Requirements		
		# in Senior Residency	# in Junior Residency	Total # in Residency
1	Cataract (Phaco/ECCE)	120*	80	250
2	Pterygium conj graft	10		
3	Repair of lid laceration			3
4	Tarsorrhaphy	3		
5	Laser PRP	50		
6	Macula laser	3 on real patients and 3 simulated		
7	Laser retinopexy	10		
8	Laser PI	20		
9	Laser capsulotomy	20		
10	Aqueous paracentesis	3		
11	Vitreous tap	5		
12	Intravitreal injection	20		
13	Cornea/Scleral T&S/corneal gluing	3		

*with video review of last consecutive 10 cases and audit of last 100 cases

Summative Assessments

Residents must achieve success in the following assessments to satisfactorily exit the Ophthalmology Residency Programme:

	Summative assessments	
	Clinical, patient-facing, psychomotor skills etc.	Cognitive, written etc.
R5	NIL	Ophthalmology Exit Exam (8 Viva stations x 20 mins)
R4	NIL	NIL
R3	MMed (Ophth) CC3 / Part 2b Oral FRCOphth Examination (5	MMed (Ophth) CC3 / Part 2b Oral FRCOphth Examination (6

	OSCE stations, 20 minutes per station)	Viva Stations, 10 minutes per station)
R2	MMed (Ophth) CC2 / FRCOphth Refraction Certificate (10 OSCE stations; 10 minutes per station)	MMed (Ophth) CC3 / Part 2a Written FRCOphth Examination (Paper 1 and 2: 2 MCQ Papers, 90 questions each; 2 hours per paper)
R1	NIL	MMed (Ophth) CC1/ FRCOphth Part 1 (Paper 1 and 2: 2 MCQ Papers, 90 questions each, 2 hours per paper)

S/ N	<u>Learning outcomes</u> based on Ophthalmology Milestones (Patient Care and Medical Knowledge) for Singapore 2017 version	<u>Summative assessment components</u>				
		MMed (Ophth) CC1/FRC Ophth Part 1 exam	MMed (Ophth) CC2/FRC Ophth Refraction certificate	MMed (Ophth) CC3/FRC Ophth Part 2a written exam	MMed (Ophth) CC3/FRC Ophth Part 2b oral exam	Viva Exit Exam
1	Patient Care (PC) 1: Patient Interview				Yes	
2	PC 2: Patient Examination				Yes	
3	PC 3: Office Diagnostic Procedures			Yes	Yes	Yes
4	PC 4: Disease Diagnosis	Yes	Yes	Yes	Yes	Yes
5	PC 5: Non-Surgical Therapy	Yes	Yes	Yes	Yes	Yes
6	PC 6: Non-Operating Room Procedures	Yes	Yes	Yes	Yes	Yes
7	PC 7: Operating Room Surgery	Yes	Yes	Yes	Yes	Yes
8	PC 8: Consultation				Yes	Yes
9	Medical Knowledge (MK) 1: Level-Appropriate Knowledge	Yes	Yes	Yes	Yes	Yes
10	MK 2: Level-Appropriate		Yes	Yes	Yes	Yes

	Knowledge Applied to Patient Management					
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