



Irish College of
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Irish College of Ophthalmologists

Specialist Training in Medical Ophthalmology

Curriculum

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Introduction

The Medical Ophthalmology Curriculum provides the structure for specialist training, culminating in graduation as an independent medical ophthalmologist with achievement of the Certificate of Completion of Medical Ophthalmology Training (CCST).

The Irish College of Ophthalmologists (ICO) is responsible for the delivery of the National Medical Ophthalmology Training Programme. The responsibility for designing the curriculum and setting curriculum standards rests with the Training Standards & Regulations Committee of the ICO.

The selection criteria were developed by the ICO for entry into the training programme and are available on the ICO website. Those who are selected on the Training Programme must acquire the recognized competences in terms of index procedures, workplace-based assessments (WBAs), and satisfactory 6-monthly Competence, Assessment & Performance Appraisal (CAPA) appraisals as well as succeed in the MRCSI Ophth examination, EBOD examination, and subspecialty Structured Oral Examinations, in order to successfully exit the programme and obtain their CCST.

This document explains the overall outline of the National Medical Ophthalmology Training Programme ('the Training Programme'), the entry and exit criteria, the stages of training, and the format of clinical rotations across clinical sites.

It details the basic and higher syllabi and Human Factors in Patient Safety (HF) Programme which lay down the standards of speciality-based knowledge, clinical judgement, technical and procedural skills, and professional skills and behaviour, which must be attained at each stage of training. The basic syllabus details the standards and content of the first three years. The specialty-specific syllabus details the specific requirements to practice as an independent medical ophthalmologist in Ireland. The HF Programme covers generic skills (communication, leadership, etc.) common to all specialties.

The document also describes the educational framework of the curriculum and how it delivers syllabi content via its teaching and learning programmes, both at the national and local levels. The assessment system highlights the performance standards and tools employed to ensure that defined competences are acquired at each stage of the training journey.

Educational Principles of the Curriculum

The purpose of the curriculum is to produce doctors with the capability to deliver an excellent standard of ophthalmic practice and provide this practice in a safe and professional manner and to meet the highest international standards.

The curriculum is based on the following principles:

- The curriculum is a hybrid model of both competency and time-based medical education, moving from a strictly time-based model to an outcome-based approach organised around competencies.
- Regulation of progression through the training programme is by the achievement of outcomes specified within the curriculum. These outcomes are competence-based, rather than time-based.
- The curriculum is mapped to the eight domains of good professional practice as outlined by the Medical Council to ensure that medical ophthalmologists completing the training programme are more than just technical experts.
- There is systematic progression from year 1 (BMT1) to year 3 (BMT3) followed by competitive entry into higher training in medical ophthalmology (HMT4 and HMT5).
- The curriculum enables trainees to practice as generalists in ophthalmology, deliver emergency services, and deliver specialised services.
- The assessment process is underpinned by explicit performance standards to ensure that the levels of competence outlined in the curriculum are attained.
- The National Training Units are the main settings for teaching, learning, and assessment.
- The ICO encourages diversity across the areas of age, disability, gender, religion, sexual orientation, and ethnic national or racial origins, both within the training programme and within the workplace.

Duration & Organization of Training

Curricular Design and progression through the Training Pathway

The curriculum follows a hybrid competency and a time-based model. It focuses on the trainees' ability to demonstrate the knowledge, skills, and professional behaviours that they have acquired in their training (specified in the syllabus) through observable behaviours. As a hybrid model, it is not solely defined by time and accordingly, it enables these competences to be acquired in different time frames reflecting variables such as structure of the programme at local level, rotation sub-specialty and the ability of the trainee.

However, there are certain milestones or competence points which enable trainees to benchmark their progress against the standards set down in the curriculum as well as assist in directing trainees towards future career choices based on their preferences and abilities. These milestones also allow assessors to determine whether trainees are adequately achieving competence along their training path and, therefore, quality assure the training programme itself.

Competency points

- Entry into Basic Training in Medical Ophthalmology (BMT).
- Six-monthly CAPA appraisals during BMT 1, BMT 2 and BMT 3.
- Completion of 3 years of BMT, achievement of required competencies and award of CCBMT.
- Entry into Higher Training in Medical Ophthalmology (HMT) via competitive cumulative scorecard performance and interview.
- Successful completion of each subspecialty Structured Oral Examination in Higher Medical Training.
- Exit with Certificate of Completion of Specialist Training (CCST).

1. Generic Components of Speciality Training

A. Human Factors in Patient Safety & Objective Structured Clinical Examination

Medical Ophthalmologists must be able to perform in different conditions and circumstances, respond to the unpredictable and make decisions under pressure, frequently in the absence of all desirable data. They use professional judgement, insight, and leadership in everyday practice and work within multi-professional teams. Their conduct is guided by professional values and standards, as laid down in the eight domains of good professional practice by the Medical Council.

The Human Factors in Patient Safety Programme is a mandatory component of ophthalmology training. The programme is delivered by the Royal College of Surgeons in Ireland (RCSI). The Human Factors syllabus is mapped to the good professional practice framework and the programme is delivered by acknowledged experts from the RCSI.

The programme has a modular approach, and each module has precise learning objectives. The syllabus is arranged so that the modules are taken in order, and a system of credits is used to signify satisfactory completion of individual modules. Each module is designed to be delivered over a one-day period, and it is intended that each trainee will take, on average, two or three modules per annum. The different modules focus on the areas of leadership and professionalism, interpersonal skills and conflict resolution, crisis management, causes and avoidance of errors, stress management, and time management, as well as the competencies defined under the 8 domains of good professional practice by the Medical Council.

The training is delivered through a combination of didactic teaching and practical work which involves role-playing and small-group discussions. Audio-visual support is provided. Trainees are encouraged to find solutions to human factor problems themselves, and they are given assignments on which to work between modules. There is an emphasis on practical applications in the workplace, and the assignments reflect the importance of workplace applications.

The Modules and their contents are listed below. Details of the dates of each module, which are repeated several times, are circulated in advance. Modules 1-5 are attended during BMT and modules 6-9 during HMT. A Human Factors OSCE style examination is taken in BMT1 & 2. Attendance at each module, as well as passing the OSCE exam, is obligatory in order to complete BMT3 and compete for HMT4 in Medical Ophthalmology.

Modules 1-5 are attended during BMT1 & 2 and modules 6-9 are attended during HMT 4 & 5. To be eligible for CCST, trainees must have completed all nine modules by the end of HMT5.

Human Factors Modules are:

1. Talking to patients and relatives
2. Professional Interactions
3. Bystander Intervention Training (online webinar)

4. Managing stress
5. Trauma B: Upper Body Trauma
6. Leadership
7. Safety Management Systems
8. 21st Century Professionalism
9. Advanced Communication: Advocacy & Negotiation

B. School for Surgeons & Interactive Classroom

School for Surgeons (SFS) and the Interactive Classroom (IC) are the online learning components of the training programme. Each trainee is issued with a unique logon name and password to access the website. The site is found at <https://vle.rcsi.com/login/index.php>.

Assessment of knowledge and understanding, as well as analysis and application of knowledge across key topics of the basic curriculum by case-based discussions, critical review of the literature, MCQs, etc. The topics are arranged to involve both basic fundamental aspects of knowledge and higher-level learning, including relevant randomized control trials, literature searches and reviews, and evidence-based approaches to clinical management. The eight subspecialty categories of the curriculum - Oculoplastic, adnexal and lacrimal, Cornea & External Disease, Cataract & Refraction, Glaucoma, Vitreoretinal Disorders including Medical Retina, Neuro-ophthalmology, Paediatric Ophthalmology & Strabismus, Accident, and Emergency Ophthalmology.

The course content of SFS is a combination of case presentations, review of relevant journal articles (Journal Watch), audio-video presentations of clinical and surgical content, and end-of-term MCQs. Cases are presented which are relevant to Ophthalmic Specialist Trainees and are based on the syllabus, the case mix encountered in the clinic, the MRCSI (Ophth) Examination, the EBOD, and the HMT SOEs. Journal Watch engages trainees in appraising relevant articles and papers in peer-reviewed journals, all of which are available on the e-journal portal.

Assignments are completed on SFS, and feedback sessions based on these assignments are facilitated through IC. Assignments are given on a regular four-weekly basis and trainees are expected to submit their assignments online by the due date. Each assignment is graded, and trainees are expected in each six-month rotation to score a minimum of 60% of assignments and a minimum of 60% of ICs to be attended. An e-Interactive Classroom using the flipped classroom model is scheduled after each assignment is completed to deliver feedback and augment deeper learning, including critical appraisal of the literature. Feedback is given in the form of text or in interactive classrooms after the assignment due date.

Participation in SFS assignments, IC feedback sessions, and the end-of-term MCQ are mandatory components of the BMT programme and contribute to the HMT entry scorecard. Each assignment is graded, and trainees are expected to score a minimum of 60% to pass each 6 month rotation of their training cycle. During HMT4 and HMT5, trainees are expected to contribute to the Interactive Classrooms.

C. Research Methodology

The Research Methodology Course is a modular programme which runs over 4 days in HMT4 and HMT5 (i.e. 2 days in each training year). The programme gives a comprehensive introduction to research methodology, critical appraisal and data analysis skills and is delivered in the RCSI by Professor Tom Fahy and his team.

The programme is mandatory for HMT trainees. Trainees who completed a taught MCh, or MD or PHD prior to entry into HMT are exempted from the research methodology course. Trainees commencing in HMT will be contacted with details of the course including exemption details.

The ICO is committed to ensuring that HMT trainees have good exposure to evidence based learning, critical appraisal and research principles as an integral part of HMT training.

Research Methodology Course Modules:

Module 1

- Introduction to Evidence Based Medicine
- Developing a research question and mapping to most appropriate study design
- Study design – strengths and weaknesses
- Fundamentals of bias, confounding and causality
- Protocol development
- Introduction to standardised reporting guidelines

Module 2

- Accessing clinical evidence
- Fundamentals of randomised controlled trials
- Fundamentals of systematic reviews and meta-analysis
- Other synopses of evidence, including clinical practice guidelines

Module 3

- Fundamentals of biostatistics
- Nature of data; descriptive statistics
- Hypothesis testing; sample size calculation
- Univariable analysis
- Multivariable analysis

Module 4

- Student presentations- protocol and/or completed research
- Funding of research and grant applications
- Peer review publishing
- Author
- Reviewer
- Editor

2. Basic Specialist Training in Medical Ophthalmology

A. Framework of Basic Training in Medical Ophthalmology for Years 1-3 (BMT1, BMT2 & BMT3).

The *aim* of the first three years of training in medical ophthalmology is to deliver a broad based initial training with acquirement of knowledge, skills and professional behaviours relevant to the practice of ophthalmology. The first three years of training are defined as BMT1, BMT2 and BMT3. Competences that are common to all ophthalmic subspecialties are defined as **basic competences**. Training in the first three years centres on the acquirement of these basic competences. These competences are detailed in the Basic Syllabus. Parallel to acquiring clinical competences, the College recognises the importance of identifying and acquiring generic competences in professionalism and patient safety. The Human Factors in Patient Safety programme (HF) is delivered in BMT 1 and BMT2.

Entry into Training in Medical Ophthalmology BMT1

Entry to the Training Programme will be by competitive interview held centrally at the ICO. Eligibility criteria and scorecard are available on the [ICO website](#).

Clinical Rotations for BMT1, BMT2 & BMT3

All recognised posts for BMT are located in the nine teaching units. Specific post allocations are determined for each trainee by the ICO. Trainees rotate through at least two training units and on average, spend 3 six-month rotations in one training unit and a further 3 six-month rotations in another department during the initial 3 years of their training so that they rotate through a minimum of two eye departments

B. Basic Syllabus BMT1 – BMT3:

The Basic Syllabus is structured to give a general foundation across all disciplines for the first three years. It reflects the early years of ophthalmic training and the need for trainees to gain competence in a range of knowledge and skills many of which will not be specialty-specific. The syllabus makes it explicitly clear *what* trainees need to know, *when* they need to know it and *how well* they need to know it.

A: Overview

B: Ophthalmic subspecialties

1. Oculoplastic, orbital and lacrimal disease
2. Cornea & external eye disease
3. Cataract & refraction
4. Glaucoma
5. Vitreoretinal and medical retina disease
6. Neuro-ophthalmology

7. Paediatric ophthalmology & strabismus
8. Accident and emergency ophthalmology

A: Overview

The Basic Syllabus comprises the following components

Key learning outcomes are identified for each subspecialty section of the syllabus. These are assessed via multiple methods including mini-CEX, CBD, online assignments on the SFS platform and MRCSI Part II throughout basic training.

Index procedures refer to ophthalmic examination techniques or procedures. Direct Observation of Procedural Skills (DOPs), Supervised Structured Assessment of Operative Performance (SSAOP) and the eLogbook are employed to evidence the acquirement of technical competence.

Standards: The *standards* of knowledge and skill is highlighted for each section.

*Assessment of key topics and index procedures is indicated by a number beside each topic or procedure. Each number represents the category of assessment tool - as indicated below.

1. Workplace Based Assessments – mini-CEX, CBD, DOPS, SSAOP
2. SFS – include CBDs, journal reviews and MCQs
3. MRCSI Part I, Refraction Certificate, Part II written and clinical
4. eLogbook
5. Human Factors OSCE
6. Consultant Trainer Report
7. Clinical Case Casebook

B: Ophthalmic subspecialties

The specialty of ophthalmology is divided into eight subspecialties. The learning outcomes and index procedures are outlined below.

1. Oculoplastics, orbital and lacrimal disease

Key clinical competencies and learning outcomes:

The trainee will know or perform to descriptor level 3

- OPL^B LO 1 The symptoms and signs of lid, naso-lacrimal and orbital disease. ^{1,2,3}
- OPL^B LO 2 The assessment of upper and lower lid position including assessment of ectropion, entropion, ptosis, lid laxity, trichiasis, proptosis, enophthalmos, lagophthalmos and exposure. ¹
- OPL^B LO 3 The assessment of abnormal lid swelling including chalazion, retention cysts, papilloma and basal cell carcinoma. ¹
- OPL^B LO 4 The assessment and management of the watering eye, including the distinction between excessive lacrimation and nasolacrimal obstruction, and the use of evaluative clinical testing and investigations including syringing and probing to establish same. ^{1,2}

- OPL^B LO 5 The assessment and management of lid, ocular and lacrimal trauma, orbital and compression fractures and traumatic optic neuropathy. ²
- OPL^B LO 6 The assessment, focused evaluation and management of the different causes of orbital swelling including inflammatory orbital disease, orbital masses distinguishing intraconal from extraconal space-occupying lesions, recognition of compressive optic neuropathy. ^{2,3}
- OPL^B LO 7 The assessment and management of orbital cellulitis in adults and children, the difference in management in the paediatric population, haematological and imaging investigations, selection of appropriate antibiotics, recognition of complications and appropriate liaison with ENT/ Neurosurgical teams. ^{2,3}
- OPL^B LO 8 The assessment and management of thyroid eye disease including staging, classification for progression, MRI imaging protocols, recognition of compressive optic neuropathy, role of orbital radiotherapy, steroids and orbital surgery as well as knowledge of systemic manifestations of thyroid disease and its medical and radioactive treatment. ^{2,3}
- OPL^B LO 9 The appropriate selection and interpretation of orbital imaging including CT and MRI scans. ^{1,2,3}
- OPL^B LO 10 Appropriate liaison with Neurosurgeons, ENT, Endocrinologists and prosthetic service.

The trainee will know to descriptor level 2

- OPL^B LO 11 Sebaceous carcinoma of lid and squamous cell carcinoma.
- OPL^B LO 12 Cicatricial malposition of the lids.
- OPL^B LO 13 Management of ptosis and blepharospasm.
- OPL^B LO 14 Canalicular repair, dacryocystorhinostomy.
- OPL^B LO 15 Non-thyroid inflammatory orbital & lacrimal diseases/tumours & their treatment.
- OPL^B LO 16 Paranasal sinus disease.
- OPL^B LO 17 Enucleation, evisceration and fitting of prosthesis, exenteration.

Index Core Skills (ICS)

The trainee will perform to descriptor level 3

- OPL^B ICS 1 Exophthalmometry. ³
- OPL^B ICS 2 Syringing and probing. ^{1,4}
- OPL^B ICS 3 Incision and curettage for chalazion. ^{1,4}
- OPL^B ICS 4 Wedge biopsy and/removal of papilloma, etc. ^{1,4}
- OPL^B ICS 5 Electrolysis/cryotherapy for trichiasis. ^{1,4}
- OPL^B ICS 6 A professional clinical assessment with communication of diagnosis and prognosis taking into account a patient anxieties, communication ability and social and mental status. ^{1,5}
- OPL^B ICS 7 An informed consent with explanation of risks and benefits of recommended treatment or surgery in a manner respectful and sensitive to the patient's needs as well as social and mental status. ^{1,5}

2. Cornea & external eye disease

Key clinical competencies and learning outcomes:

The trainee will know or perform to descriptor level 3

- CExt^B LO 1 The symptoms and signs of external eye disease and corneal disease.^{1,3}
- CExt^B LO 2 How to take an accurate history and perform a competent anterior segment examination of the lids, conjunctiva (bulbar and tarsal), cornea, sclera and episclera.^{1,3}
- CExt^B LO3 The aetiology, pathophysiology, diagnosis and treatment of infectious external disease, including viral, bacterial and chlamydial conjunctivitis.^{2,3}
- CExt^B LO 4 The assessment and management of blepharitis, meibomianitis, and its treatment.^{2,3}
- CExt^B LO 5 The assessment and management of episcleritis.
- CExt^B LO 6 The assessment of the dry eye, including symptoms, assessment of reduced tear production (TFBUT, TM, corneal/conjunctival staining) tear film stability and systemic associations, as well as its management.^{1,3}
- CExt^B LO 7 The assessment and evidence-based management of traumatic injury and chemical injury of the conjunctiva and cornea.²
- CExt^B LO 8 The assessment and evidence-based management of allergic and atopic eye disease.³
- CExt^B LO 9 The assessment and evidence-based management of microbial keratitis and its differential diagnosis. An in-depth understanding of common gram positive and gram-negative causes of microbial keratitis with knowledge of spectrum of cover of commonly used topical antibiotics, including evidence of RCTs on monotherapy versus dual therapy and evidence-based knowledge of the complications and potential hazards of topical steroid use.^{1,2,3,7}
- CExt^B LO 10 The identification of acanthamoeba and fungal keratitis, implications of early diagnosis, knowledge of various treatment regimens including duration of treatment and indications for corneal biopsy.^{2,3,7}
- CExt^B LO 11 The assessment and management of corneal ulceration from viral and bacterial disease, marginal keratitis and neurotrophic disease and inflammatory disease.^{1,2,3}
- CExt^B LO 12 The assessment and management of Herpes Simplex keratitis, with evidence base from HEDS I and II. Evidence based knowledge on prophylaxis for epithelial vs stromal disease.^{1,2,3,7}
- CExt^B LO 13 The indications for therapeutic contact lenses and their complications.^{1,2,3}
- CExt^B LO 14 The causes of corneal oedema, endothelial cell count measurements, Fuch's endothelial dystrophy, corneal transplantation, indications for PK / DSEK, standards of care in donor eye procurement, signs of graft rejection & other complications³
- CExt^B LO 15 The identification and evaluation of corneal ectasia and indications for cross-linking,^{2,3}
- CExt^B LO 16 The appropriate utilization of corneal topography, pachymetry, keratometry and Placido's disc.^{2,3}
- CExt^B LO 17 The pharmacology and pharmokinetics of topical medications.²

The trainee will know to descriptor level 2

- CExt^B LO 18 The common corneal dystrophies and interstitial keratitis.
- CExt^B LO 19 The basics of refractive surgery.
- CExt^B LO 20 Cicatricial conjunctival disease and limbal stem cell transplantation.

- CExt^B LO 21 Autoimmune corneal and scleral disease including peripheral ulcerative keratitis and use of immunosuppressive therapies.
- CExt^B LO 22 The management of pterygium, conjunctival and uveal tumours.

Index Core Skills (ICS)

The trainee will perform to descriptor level 3

- CExt ICS 1 Slit-lamp biomicroscopy. ¹
- CExt ICS 2 Conjunctival sampling & corneal scraping for microbiological investigations. ^{1,4}
- CExt ICS 3 Corneal topography, pachymetry, keratometry and Placido's disc. ³
- CExt ICS 4 Cross-linking. ⁴
- CExt ICS 5 Punctal occlusion. ^{1,4}
- CExt ICS 6 Performance of a professional clinical assessment with communication of diagnosis and prognosis taking into account a patient anxieties, communication ability and social and mental status. ^{1,5}
- CExt ICS 7 Performance of informed consent with explanation of risks and benefits of recommended treatment or surgery in a manner respectful and sensitive to the patient's needs as well as social and mental status. ^{1,5}

Essential Reading

Ofloxacin Study Group.

HEDS I and II.

Steroids for Corneal Ulcer Trial SCUT

3. Cataract & Refraction

Key clinical competencies and learning outcomes:

The trainee will know or perform to descriptor level 3

- CAT^B LO 1 The symptoms and signs of cataract and refractive disease and how to perform a competent examination of both systems, including LogMAR Charts. ^{1,3}
- CAT^B LO 2 The assessment and management of ametropia, including hypermetropia, myopia, astigmatism and their complications. ^{1,3}
- CAT^B LO 3 The assessment and management of accommodation problems, including spasm and presbyopia.
- CAT^B LO 4 The assessment and management of lens opacifications, including types of cataract, relationship of opacity to symptoms, contribution to visual loss in co-morbidities, systemic associations, cataract surgery and its complications. ^{1,3}
- CAT^B LO 5 The risks and benefits of cataract surgery, knowledge of ocular and systemic factors that increase risk and role of co-morbidities in outcome, how to perform informed consent. ^{1,3,5}
- CAT^B LO 6 The pre-operative and post-operative assessment of phacoemulsification surgery, with attention to ocular, systemic and medication related factors that influence the surgical outcome. ^{1,2,3}
- CAT^B LO 7 The assessment and management of pseudoexfoliation of the lens capsule, including its recognition and significance pre-operatively and intra-operatively as well as its association with glaucoma. ^{1,2,3}

- CAT^B LO 8 The calculation of intraocular lens power according to the patient's refractive needs, knowledge of algorithms, including post-refractive surgery. ^{1,2,3}
- CAT^B LO 9 The diagnosis and immediate management of post-operative endophthalmitis, with knowledge of relevant causative bacteria and appropriate antibiotic treatment regimens. ^{1,2,3}
- CAT^B LO 10 Liaison with contact lens service.

The trainee will know to descriptor level 2

- CAT^B LO 11 Basis of spectacle intolerance from poor dispensing or defective prescription.
- CAT^B LO 12 Combined cataract and glaucoma/corneal transplantation surgery.
- CAT^B LO 13 Ectropia lentis and Marfan's syndrome.
- CAT^B LO 14 Therapeutic contact lenses, refractive surgery, intraocular lens design and biomaterials.

Index Core Skills (ICS)

The trainee will perform to descriptor level 3

- CAT^B ICS 1 logMAR charts in the assessment of visual acuity. ^{1,3}
- CAT^B ICS 2 Retinoscopy, correction of refractive error by spherical, cylindrical & multi-focal lenses, lens neutralisation & use of focimeter, trial lenses & subjective refraction. ^{3,4}
- CAT^B ICS 3 Biometry and keratometry for intraocular lens calculation, both IOL Master and immersion methods. ^{1,2,3}
- CAT^B ICS 4 A professional pre-operative clinical assessment for cataract surgery with attention to ocular, systemic and medication related factors that influence the surgical outcome. Communication of diagnosis and prognosis taking into account a patient anxieties, communication ability and social and mental status. ^{1,2,3,5}
- CAT^B ICS 5 A communication and explanation of the occurrence of a post-operative complication requiring further surgery, in a manner respectful and sensitive to the patient's and relatives concerns and anxieties as well as adapted to their social and mental status. ^{1,5}
- CAT^B ICS 6 YAG laser posterior capsulotomy. ^{1,4}

4. Glaucoma

Key clinical competencies and learning outcomes:

The trainee will know or perform to descriptor level 3

- GL^B LO1 How to take an accurate history and perform an accurate and reliable clinical examination of the anterior segment relevant to glaucoma (pachymetry, identification of PDS, PXF, anterior segment dysgenesis, etc) gonioscopy, tonometry. ^{1,2,3}
- GL^B LO2 The aetiology, risk factors and pathophysiology of glaucoma. ^{1,2,3}
- GL^B LO3 The assessment, diagnosis, management of open and closed angle forms of glaucoma. ^{1,2,3}
- GL^B LO4 The pathophysiology and management of ocular hypertension as well as secondary glaucomas such as PDG, PXF, traumatic. ^{1,2,3}
- GL^B LO5 The accurate evaluation and assessment of the optic nerve head. ^{1,2,3}
- GL^B LO6 The physiology of white-on-white perimetry and accurate analysis of visual field performance. ^{1,2,3}
- GL^B LO7 The different methods to monitor for visual fields progression. ^{1,2,3}

- GL^B LO8 The importance of systemic vascular conditions, in particular vasospasm & low blood pressure, in glaucoma, especially normal tension glaucoma.²
- GL^B LO9 The pharmacology & pharmokinetics of topical & systemic glaucoma medication.^{1,2,3}
- GL^B LO10 The appropriate prescribing of pharmacological therapy to include advise of adverse reactions and side effects of therapy.^{1,2,3}
- GL^B LO11 A professional communication to patients and relatives regarding the implications of a diagnosis of glaucoma in relation to prognosis, chronicity of disease & treatment compliance^{1,5}
- GL^B LO12 How to monitor compliance.
- GL^B LO13 How to assess effectiveness of therapy.^{1,2,3}
- GL^B LO14 The assessment, diagnosis and management (medically) and treat (laser) of acute angle closure glaucoma.^{1,2,3}
- GL^B LO15 An evaluation for rubeotic glaucoma.^{1,2,3}
- GL^B LO16 The timing and indications of glaucoma drainage surgery, complications and their treatment.^{1,2,3}

The trainee will know to descriptor level 2

- Optic nerve imaging and retinal nerve fibre layer analysis.
- Other secondary glaucomas including phacolytic, erythroclastic, and silicone-oil glaucomas, Posner Schlossman syndrome, chronic closed angle glaucoma and malignant glaucoma.
- Aniridia and other dysgenesis, ICE, Hypotony, including its causes and consequences.
- Selective and Argon laser trabeculoplasty
- Prevention of glaucoma bleb failure e.g. using anti-metabolites
- Drainage tubes and stents / Cycloablation.

Index Core Skills

The trainee will perform to descriptor level 3

- Goldmann Applanation Tonometry.¹
- Pachymetry.¹
- Gonioscopy including indentation gonioscopy.¹
- Optic disc assessment and evaluation.^{2,3}
- Visual field testing and interpretation, including Goldmann and white-on-white Standard Automated Perimetry (SAP).^{1,2,3}
- Performance of YAG laser peripheral iridotomy^{1,4}
- A professional clinical assessment with communication of diagnosis and prognosis taking into account a patient anxieties, communication ability and social and mental status.^{1,5}
- An informed consent with explanation of risks and benefits of recommended treatment or surgery in a manner respectful and sensitive to the patient's needs as well as social and mental status.^{1,5}

Essential Reading

European Glaucoma Society Guidelines 2017

5. Vitreoretinal and medical retina disease

Key clinical competencies and learning outcomes:

The trainee will know or perform to descriptor level 3

- MRet^{BM} LO 1 How to take a history relevant to posterior segment disease.^{1,2,3}
- MRet^{BM} LO 2 The symptoms of posterior segment disease and relation to disease entity.^{1,2,3}
- MRet^{BM} LO 3 The assessment of visual function- Logmar and Snellen visual acuity, Amsler Grid testing, contrast sensitivity, pupillary examination.²
- MRet^{BM} LO 4 The signs of vitreous abnormalities - vitreous detachment (PVD), operculum formation, syneresis and vitreous opacities (including asteroid and haemorrhage, snowballs) and vitreous cells detection (inflammatory, neoplastic and pigment).^{1,2,3}
- MRet^{BM} LO 5 The signs of retinal abnormalities - retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative), senile/acquired retinoschisis, recognition and classification of proliferative vitreoretinopathy), inflammatory change (snowbanking). The signs of retinal vasculature abnormalities in relation to systemic/ocular disease (hypertension, diabetes mellitus including neovascularisation and intraretinal microvascular abnormalities (IRMAs), retinal vascular occlusions, retinal arteriolar occlusions, drug (plaquenil) toxicities, retinal vasculitis (arteritis or venulitis), ocular ischaemic syndrome.^{1,2,3}
- MRet^{BM} LO 6 The signs of macular abnormalities – abnormal foveal reflex, Watske- Allen sign, epiretinal membrane, retinal thickening, VMT, cystoid macular oedema, age-related maculopathy, choroidal neovascular membrane and haemorrhage, vitelliform lesions, drusen, RPE change, pigment epithelial detachment, central serous disease and macular hole, related symptomatology and urgency of treatment.^{1,2,3}
- MRet^{BM} LO 7 The relevance of symptoms of flashes and floaters, the complications of posterior vitreous detachment and the identification of retinal tears.^{1,2,3}
- MRet^{BM} LO 8 The initial management of vitreous hemorrhage from retinal tears or neovascularization.^{1,2,3}
- MRet^{BM} LO 9 The classification of retinal detachments, rhegmatogenous or exudative, predisposition, recognition, surgical choice for re-attachment & urgency of treatment (macular on / off) and recognition of proliferative vitreoretinopathy.^{1,2,3}
- MRet^{BM} LO 10 The classification of, screening strategies for, and management of diabetic retinopathy.^{1,2,3}
- MRet^{BM} LO 11 The clinical assessment for and the accurate diagnosis of hypertensive & arteriosclerotic retinopathy, including macroaneurysm formation.^{1,2,3}
- MRet^{BM} LO 12 The clinical assessment for and the accurate diagnosis of retinal vascular occlusions, and the identification of ischaemic and exudative responses including rubeosis.^{1,2,3}
- MRet^{BM} LO 13 The clinical assessment for and the accurate diagnosis of macular diseases, including identification and management of age-related maculopathy, choroidal neovascularization, cystoid macular oedema, CSR, ERM, VMT and macular hole, macular telangiectasia I & II, related symptomatology and urgency of treatment.^{1,2,3}
- MRet^{BM} LO 14 The clinical assessment for and the accurate diagnosis of central retinal artery occlusion / Giant Cell Arteritis.⁵
- MRet^{BM} LO 15 The medical workup for retinal vascular disease and the importance of control of risk factors.^{1,2,3}

- MRet^{BM} LO 16 The differential diagnosis & treatment of malignant melanoma & identification of suspicious naevi.⁵

The trainee will know to descriptor level 2

- MRet^{BM} LO 17 The clinical signs of anterior, intermediate & posterior uveitis- classification, toxoplasmosis, toxocara, syphilis, TB, sarcoid, Bechet's, Lyme, cat-scratch, sympathetic ophthalmia and their investigations and treatment. .^{1,2,3}
- MRet^{BM} LO 18 Low vision Aid services and blind registration services
- MRet^{BM} LO 19 Toxic maculopathies.^{1,2,3}
- MRet^{BM} LO 20 Indocyanine green angiography, electrodiagnostic tests and dark adaptation.
- MRet^{BM} LO 21 Genetic retinal disease, retinal dystrophies, retinoblastoma.
- RET^{BS} LO 22 Signs of choroidal or scleral disease - choroidal melanoma, inflammatory choroidal disease (choroiditis, granuloma), posterior scleritis.^{1,2,3}
- MRet^{BM} LO 23 Rare retinal disease Intraocular lymphoma, CAR. AZOOR. ARN
- MRet^{BM} LO 24 Coats' disease.
- MRet^{BM} LO 25 AIDS-related opportunistic infections including CMV and anti-AIDS treatment.
- MRet^{BM} LO 26 Other vasoproliferative vitreoretinopathies including sickle cell retinopathy, retinopathy of prematurity, Eales' disease.
- MRet^{BM} LO 27 Vitreoretinal surgery, including closed intraocular microsurgery, scleral buckling & internal tamponade.
- MRet^{BM} LO 28 Intraocular foreign body, complications and management.
- MRet^{BM} LO 29 Retinal phakomatoses.
- MRet^{BM} LO 30 Genetic vitreoretinal disease – Stickler syndrome, X-linked retinoschisis, choroido-retinal coloboma.

Index Core Skills (ICS)

The trainee will perform to descriptor level 3

- RET^{BM} ICS 1 A diagnostic examination of the vitreous including vitreous detachment (PVD), syneresis and vitreous opacities (including asteroid and hemorrhage) and vitreous cell detection (inflammatory, neoplastic and pigment).^{1,3}
- RET^{BM} ICS 2 A diagnostic examination of macula (90 D, 78 D) to include foveal reflex assessment, Watske Allen test, identification of epiretinal membrane, vitreo-macular traction, retinal thickening, choroidal neovascular membrane, drusen, RPE change, pigment epithelial detachment, central serous disease and macular hole formation.^{1,3}
- RET^{BM} ICS 3 A diagnostic examination of the peripheral retina (90 D, 78 D, 20 D) utilising indentation techniques & retinal drawings to correctly identify retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative) and inflammatory change (snowbanking).^{1,3}
- RET^{BM} ICS 4 Optical Coherence Tomography to correctly identify vitreoretinal interface intra-retinal and sub-retinal pathology.^{1,2,3}
- RET^{BM} ICS 5 Fundus Fluorescein angiography to correctly identify intra-retinal and sub-retinal pathology.^{1,2,3}
- RET^{BM} ICS 6 B-scan ultrasonography to correctly identify vitreous haemorrhage and retinal detachment.

- RET^{BM} ICS 7 Laser via slit-lamp for retinal tear. ⁴
- RET^{BM} ICS 8 Pan- retinal laser photocoagulation of the peripheral retina. ^{1,4}
- RET^{BM} ICS 9 Macular laser – focal/grid. ^{1,4}
- RET^{BM} ICS 10 Intravitreal injection technique- indications, complications. ^{1,4}
- RET^{BM} ICS 11 A professional clinical assessment with communication of diagnosis and prognosis taking into account a patient anxieties, communication ability and social and mental status. ^{1,5}
- RET^{BM} ICS 12 An informed consent with explanation of risks and benefits of recommended treatment, laser or surgery in a manner respectful and sensitive to the patient's needs as well as social and mental status. ^{1,5}

Essential Reading

EURETINA Guidelines on DME, Retinal Vein occlusions and ARMD

AREDS I and II

PIERS, MARINO, CATT, IVAN

CRVO Study, BRVO study, BRAVO, BRIGHT, CRYSTAL

RISE / RIDE

6. Neuro-Ophthalmology

Key Clinical Competencies and Learning Outcomes:

The trainee will know or perform to descriptor level 3

- NO^B LO1 The symptoms and signs of visual pathway disorders. ^{1,2,3}
- NO^B LO2 The aetiology of visual pathway disorders (ischaemic, inflammatory, infectious, compressive, toxic, neoplastic, autoimmune, congenital) and the identification of the site and nature of the lesion/s from relevant history and examination. ^{1,2,3}
- NO^B LO3 The appropriate investigations for visual loss and lesions of the afferent visual pathway, including optic neuropathies (ischaemic, inflammatory, infectious, compressive, toxic, neoplastic, autoimmune, congenital), chiasmal and retro-chiasmal disorders. ^{1,2,3}
- NO^B LO4 The neuro-ophthalmic examination to accurately diagnose cranial nerve anomalies, understand their clinical relevance and to correctly prioritize their management based on a life-threatening or a sight threatening clinical basis. ^{1,3,7}
- NO^B LO5 The vascular disorders appropriate to neuro-ophthalmology including their clinical assessment, diagnosis and appropriate management - to include ischemic optic neuropathies, cerebro-vascular accidents / transient ischaemic attacks, vasculitis, giant cell arteritis and carotid artery dissection. ^{1,2,3,7}
- NO^B LO6 The neuro-ophthalmic examination for temporal arteritis with knowledge of its range of presentations, its sight threatening nature, the relevant haematological, radiological and histological investigations and the importance of prompt treatment with steroids. ^{1,3,7}
- NO^B LO7 The neuro-ophthalmic examination to accurately diagnose eye movement abnormalities including supra- and infra-nuclear lesions, internuclear ophthalmoplegia, nystagmus and ocular myopathies. ³
- NO^B LO8 The disorders of neuro-immunology including multiple sclerosis (especially in relation to its ophthalmic manifestations) and myasthenia gravis. ^{2,3}

- NO^B LO 9 The neuro-ophthalmic examination to accurately diagnose and manage optic neuritis with reference to the existing evidence base and to select appropriate imaging with reference to imaging protocols for diagnosis, staging and prognosis. ^{2,3,7}
- NO^B LO 10 The neuro-ophthalmic examination to accurately diagnose swollen optic discs and evaluate for papilloedema and assess for Benign Intracranial Hypertension, as well as differentiate from ischemic optic neuropathy, acute optic neuritis, toxic optic neuropathies and congenital optic disc anomalies. ^{3,7}

The trainee will know or perform to descriptor level 2

- NO^B LO 11 Tests of retinal and optic nerve function (VEP, ERG, PERG, EOG).
- NO^B LO 12 The accurate interpretation of psychophysical tests (including tests of visual acuity, visual fields and colour vision), neuro-physiological tests (including tests of retinal and optic nerve function), and orthoptic examinations (including the cover test, the prism cover test, field of BSV and Hess charts). ^{1,3}
- NO^B LO 13 The clinical urgency, appropriate selection and interpretation of neuro-imaging, including CT and MRI of eye, orbit and brain, MRA and MRV, carotid Doppler ultrasound.
- NO^B LO 14 An effective communication with patients, including those with impaired visual function. ^{1,3,5}
- NO^B LO 15 The importance of visual rehabilitation and the management of visual handicap.
- NO^B LO 16 A professional liaison with neurologists, neurosurgeons, endocrinologists and vascular surgeons.
- NO^B LO 17 Botulinum toxin treatment, its mechanism of action and its clinical applications. ^{3,4}
- NO^B LO 18 Tensilon test, tests for Horner's Syndrome and for Adies Pupil ^{2,3}

Index Core Skills ICS

The trainee will perform to descriptor level 3

- NO^B ICS 1 An accurate and reliable clinical neuro-ophthalmic examination including CRNs I to XII, VFs to confrontation / macular sparing and optic nerve assessment. ^{1,3}
- NO^B ICS 2 Interpretation of Goldmann VFs & Visual evoked potentials (VEP). ^{1,3}
- NO^B ICS 3 An accurate ocular motility examination (including the cover test, the prism cover test, field of BSV and Hess charts). ^{1,3}
- NO^B ICS 4 A professional clinical assessment with sensitive communication of a diagnosis with a poor visual prognosis taking into account a patient anxieties, communication ability and social and mental status. ^{1,5}
- NO^B ICS 5 An informed consent with explanation of risks and benefits of recommended treatment or surgery in a manner respectful and sensitive to the patient's needs as well as social and mental status. ^{1,5}

Essential Reading

Optic Neuritis Study I and II

7. Paediatric ophthalmology and strabismus

Key Clinical Competencies and Learning Outcomes

The trainee will know or perform to descriptor level 2

- Paed^{BM} LO 1 The prevention and treatment of amblyopia and strabismic amblyopia and the role of screening strategies, the role and timing of refraction, correction of refraction error, spectacle prescription, occlusion therapies, patching and atropine. ³
- Paed^{BM} LO 2 The diagnosis and management of concomitant strabismus, the interpretation of the orthoptic report, the role of accommodation, indications for surgery, prediction of post-operative diplopia. ³
- Paed^{BM} LO 3 Incomitant & comitant strabismus, cranial nerve palsies including 6th nerve palsy & presentation of raised intracranial pressure in a paediatric population ^{1,3}
- Paed^{BM} LO 4 The ocular motility syndromes (Duane's, Brown's). ^{1,3}
- Paed^{BM} LO 5 The diagnosis, management and treatment of paediatric lens abnormalities including congenital cataract, unilateral and bilateral, and prevention of amblyopia. ³
- Paed^{BM} LO 6 The diagnosis, management and treatment of paediatric uveitis and paediatric systemic disease with ocular involvement. ^{1,2,3}
- Paed^{BM} LO 7 The diagnosis, management and acute treatment of orbital cellulitis. ^{1,2,3}
- Paed^{BM} LO 8 The diagnosis, management and acute treatment of ophthalmia neonatorum. ^{1,2,3}
- Paed^{BM} LO 9 The diagnosis and management of accidental and non-accidental eye injury and the approach to infants, children and their parents. ^{1,2,3}
- Paed^{BM} LO 10 The diagnosis and management of congenital nasolacrimal obstruction. ^{1,2,3}
- Paed^{BM} LO 11 The accurate and targeted clinical assessment of the apparently blind infant with reference to normal and delayed visual maturation, learning disabilities and role of visual electro-physiology.
- Paed^{BM} LO 12 The diagnosis, management and treatment of paediatric ocular tumours including the differential diagnosis of leucocoria and differential diagnosis of retinoblastoma.
- Paed^{BM} LO 13 The diagnosis and management of ocular albinism.
- Paed^{BM} LO 14 Professional liaison with pediatricians, geneticists and services for the rehabilitation of the visually disabled child.

The trainee will know to descriptor level 2

- Paed^{BM} LO 15 The diagnosis, management and treatment of paediatric glaucoma, including congenital glaucoma.
- Paed^{BM} LO 16 The diagnosis, management and treatment of paediatric retinal disease.
- Paed^{BM} LO 17 The diagnosis, management and treatment of paediatric neuro-ophthalmology and knowledge of paediatric neurological diseases affecting vision
- Paed^{BM} LO 18 Nystagmus, congenial and acquired.
- Paed^{BM} LO 19 Ocular myopathies and the neuromuscular junction.
- Paed^{BM} LO 20 Oblique muscle, vertical muscle and adjustable suture surgery.
- Paed^{BM} LO 21 Retinopathy of prematurity, screening and treatment.
- Paed^{BM} LO 21 Genetic and developmental disorders, Leber's amaurosis, X-linked schisis, Coats' disease.
- Paed^{BM} LO 23 Presentation of raised intracranial pressure in infancy and childhood.
- Paed^{BM} LO 24 Orbital tumours in children, including rhabdomyosarcoma.
- Paed^{BM} LO 25 Services for the rehabilitation of the visually disabled child.

Index Core Skills (ICS)

The trainee will perform to descriptor level 3

- Paed^{BM} ICS 1 Assessment of the visual acuity in infants and children including fixation, preferential looking, single and linear optotype tests.
- Paed^{BM} ICS 2 Fundoscopy in children. ¹
- Paed^{BM} ICS 3 Cycloplegic refraction & prescribing for children including bifocals and Fresnel prisms. ¹
- Paed^{BM} ICS 4 Cover test in infants / children (including alternate and prism) including identifying and characterizing esotropic and exotropic ocular motility conditions in children. ¹
- Paed^{BM} ICS 5 Stereo tests in infants / children, to include the management of amblyopia and of disorders of binocular function. ¹
- Paed^{BM} ICS 6 Evaluations and referrals of patients for orthoptic treatment as appropriate, monitor progress of amblyopia treatment, evaluate the suitability of prisms as a corrective measure for the patient. ^{1,3}
- Paed^{BM} ICS 7 Ocular motility assessments to identify vertical strabismus, Duane's syndrome and Brown's syndrome. ^{1,3}
- Paed^{BM} ICS 8 A professional and clinical assessment, sensitively adapted to the paediatric setting, with communication of diagnosis and prognosis to the parents, taking into account their anxieties, communication ability and social and mental status. ^{1,5}
- Paed^{BM} ICS 9 An informed consent to parents with explanation of risks and benefits of treatment or surgery in a manner respectful and sensitive to both the child's and the parents' needs as well as their social and mental status. ^{1,5}

Essential Reading

Paediatric Eye Disease Investigator Group Studies.

8. Accident and Emergency Ophthalmology

Key Clinical Competencies and Learning Outcomes:

The trainee will know or perform to descriptor level 3

- ER^B LO 1 A clinical assessment for superficial ocular trauma including assessment and treatment for foreign bodies, abrasions and minor lid lacerations. ⁴
- ER^B LO 2 A clinical assessment and management for moderate blunt ocular injury including hyphaema, commotio retinae, orbital fracture. ²
- ER^B LO 3 A clinical assessment and initial management for severe orbital injury including corneal & scleral wounds, aqueous leakage & tissue prolapse, traumatic optic neuropathy.
- ER^B LO 4 A clinical assessment and initial management for retained intraocular foreign body with appropriate imaging with X-ray and / or CT scan.
- ER^B LO 5 A clinical assessment and initial management chemical/alkali burns of the conjunctiva and cornea. ^{1,3}
- ER^B LO 6 A clinical assessment and initial management of sudden painless loss of vision from retinal arterial occlusion, central retinal vein occlusion, acute ischaemic optic neuropathy, temporal arteritis, optic neuritis with prompt treatment where urgent. ^{1,3,7}
- ER^B LO 7 A clinical assessment and initial management of severe intraocular infection from endophthalmitis or keratitis.

- ER^B LO 8 A clinical assessment of acute angle closure glaucoma with initial management for acute reduction of intraocular pressure. ^{1,3}
- ER^B LO 9 Professional liaison with radiological department, microbiology department, ENT and maxillary-facial surgeons.

The trainee will know or perform to descriptor level 2

- ER^B LO 10 Eye protection and prevention of injury.
- ER^B LO 11 Lateral canthotomy and inferior cantholysis for retrobulbar haemorrhage.

Index Core Skills ICS

The trainee will perform to descriptor level 3

- ER^B ICS 1 Removal of superficial foreign body. ⁴
- ER^B ICS 2 Corneal epithelial debridement. ⁴
- ER^B ICS 3 Repair of minor conjunctival/lid lacerations. ⁴
- ER^B ICS 4 Placement of a BCL.
- ER^B ICS 5 Irrigation of eye following chemical injury.
- ER^B ICS 6 Removal of sutures from the eye and adnexae. ⁴
- ER^B ICS 7 A professional and clinical assessment, adapted to a busy and undermanned accident and emergency setting, with communication of diagnosis and prognosis to a difficult patient, taking into account their anxieties, communication ability and social and mental status. ^{1,5}
- ER^B ICS 8 An informed consent process with explanation of risks and benefits of treatment or surgery in a manner respectful and sensitive to the patient's needs as well as their social and mental status. ^{1,5}

C. Delivery of the Basic Curriculum-The Educational Framework: The Teaching and Learning Programme

Delivery of the curriculum – The Educational Framework: The Teaching and Learning Programme describes how the content of the curriculum is communicated and delivered by the ICO to the individual training units and trainees, including the methods by which trainees are supervised.

The Teaching and Learning Programme is the structured education component of the Curriculum and is delivered by approved Consultant Trainers in National Training Units and the Irish College of Ophthalmologists. Full participation in this programme is mandatory for all trainees. The structured education component goes hand in hand with work-place training, enhancing the knowledge and skills acquired through clinical training posts.

I. Knowledge

The basic knowledge section of the Curriculum is delivered through a structured blended teaching and learning education programme with local, national and e-learning components.

Clinical Supervision

Clinical knowledge and experience gained from direct patient care on the ward, out-patient department and/or theatre and supervised by Consultant Trainer/s in National Training Units, accredited by the ICO.

In-house teaching

A minimum of two hours per week of in-house teaching per week (during the academic year) takes place in each training unit. The content should be broadly based on the syllabus and should include case presentations, journal club, didactic lectures and audit. Each Consultant Trainer in the unit is expected to participate in the teaching and such participation by Trainers as well as attendance by trainees should be documented by the Unit's Educational Supervisor. It is obligatory for trainees to attend a minimum of 60% of postgraduate in-house teaching.

The National Postgraduate Teaching Programme

The NPGTP includes monthly case presentations and lectures given by national and international invited speakers, with each subspecialty being represented at least once in the academic year. The programme is run by the Royal Victoria Eye and Ear Hospital from September to June of each academic year. The programme is live streamed.

Irish College of Ophthalmologists Courses / Study Days

The ICO delivers a number of academic courses throughout the year. Each trainee must attend at least one course per year during their BMT training and must have attended all obligatory courses by the end of BMT to be awarded CCBMT.

Compulsory Courses for Basic Training in Ophthalmology BMT1 – BMT3

- Irish College of Ophthalmologists National Courses
- Annual Strabismus Course – University Hospital Waterford
- Microsurgical Skills Course ICO / RCSI
- Local Ocular Anaesthetics Course – RVEEH, Dublin

National eTutorial Series for Ophthalmology

The ICO National eTutorial Series was launched in January 2021 as part of the online learning programme. The College hosts weekly subspecialty teaching sessions that are aligned to the learning outcomes of the curriculum. Trainees are strongly encouraged to attend and engage in these sessions.



The sessions run for 10 months, September to June, of the training year. The sessions include a 30 minute presentation followed by a short 10 minute Q&A session. The presentations are recorded and are available for trainees to access via the ICO trainee portal.

II. Technical, Clinical and Procedural Skills

The skills section of the curriculum is delivered through a structured blended teaching and learning education programme using simulator and wet-lab facilities as well as didactic teaching methods.

Clinical Supervision

Clinical skills and experience gained from direct patient care on the ward, out-patient department and/or theatre and supervised by Consultant Trainer/s in National Training Units, accredited by the ICO.

Wet-lab based facilities

Wet-lab and dry-lab facilities allow trainees to expand their hands-on technical experience and further progress their development as a procedural and technical expert. A one day dry and wet-lab microsurgical skills course held at the RCSI is obligatory for all BMT1 trainees in the first 6 months of their training.

Refraction Simulator Tutorials

A refraction simulator is used to teach the basic refraction skills. The simulator provides the opportunity to practice the steps of refraction, resulting in a faster and safer transition to live refraction.

D. Assessment and Feedback

1. Overview of the Assessment System

Assessment is the systematic procedure for measuring a trainee's progress or level of achievement, against *defined criteria* to make a judgement about a trainee. The assessment system refers to an *integrated set* of assessments which is in place for the entire of the basic training programme and which is blueprinted against and supports the approved Medical Ophthalmology Curriculum. Such a system supports a variety of purposes including informing learning and instruction, determining progress, measuring achievement, providing accountability and informing the efficacy of the curriculum itself as to the achievement of specified milestones.

The purpose of the assessment system is to

- Define the performance standard.
- Address the breadth and depth of agreed performance standards across the different domains of the curriculum, not just those that are easy to measure.
- Employ a broad variety of assessment tools or instruments at local, national and international level and incorporate formative as well as summative measures.
- Determine whether trainees have acquired the common and specialty-based knowledge, clinical judgment, procedural and technical skills, and professional

behaviour and leadership skills required to practice at the level of an independent medical ophthalmologist at specialist registration level.

- Provide systematic and comprehensive feedback as part of the learning cycle.
- Address all the eight domains of Good Professional Practice and conform to the principles laid down by the Medical Council.
- Determine whether trainees are meeting the standards of competence and performance specified at various stages in the curriculum so as to quality assure the curriculum itself.

2. Defining the Performance Standard*

Defining the performance standard is key to the assessment process. The quality of the assessment is dependent on the quality of the performance standard. Performance standards form the basis for the identification and provision of relevant teaching and training opportunities that are needed to support trainees at each particular stage of development.

They also inform competence-based assessment to provide evidence of, not only what trainees know, but what they can do.

Standards for Training*

Standards for depth of knowledge

**Modified from the Intercollegiate Surgical Curriculum Programme UK 2015*

The performance standard for knowledge is based on a 4 stage competence level. Each topic within a stage has a competence level ascribed to it, ranging from 1 to 4, which indicates the depth of knowledge required.

1. Knows of
2. Knows basic concepts
3. Knows generally
4. Knows specifically and broadly

In the early basic years of training (BMT 1- BMT3), the appropriate depth and level of knowledge required can be found in exemplar texts tabulated below (level 2-3). The College expects trainees to gain knowledge from these texts in the context of ophthalmic practice defined in the basic component of the curriculum. The texts are not recommended as the sole source within their subject matter and there are alternative textbook and web information that may better suit an individual's learning style.

Recommended Textbooks

1. American Ophthalmology Monograph Series. American Academy of Ophthalmology.
2. Clinical Ophthalmology: A Systematic Approach. Jack Kanski.
3. Practical Ophthalmology: A Manual for Beginning Residents. American Academy of Ophthalmology.
4. Clinical Anatomy of the Eye. Snell.
5. The Eye; Basic Sciences in Practice. John Forrester & Andrew Dick.

6. Ophthalmology: Investigation & Examination Techniques. James C.B., Benjamin Larry. Elsevier 2006.

Standards for Training

Standards for technical and procedural skills*

**Intercollegiate Surgical Curriculum Programme UK 2015*

The performance standard for technical and procedural skills has a 4 stage competence level defined by a descriptor ranging from 1 to 4.

1. Has observed:

Descriptor: at this level the trainee:

- Has adequate knowledge of the steps through direct observation.
- Demonstrates that he/she can handle steps relevant to the procedure appropriately and safely.
- Can perform some parts of the procedure with reasonable fluency.

2. Can do with assistance:

Descriptor: at this level the trainee:

- Knows all the steps – and the reasons that lie behind the methodology.
- Can carry out a straightforward procedure fluently from start to finish.
- Knows and demonstrates when to call for assistance / advice from the supervisor (knows personal limitations).

3. Can do whole but may need assistance:

Descriptor: at this level the trainee:

- Can adapt to well-known variations in the procedure encountered, without direct input from the trainer.
- Recognises and makes a correct assessment of common problems that are encountered.
- Is able to deal with most of the common problems.
- Knows and demonstrates when he/she needs help.
- Requires advice rather than help that requires the trainer to assist.

4. Competent to do without assistance, including complications:

Exit descriptor: at this level the trainee:

- With regard to the common clinical situations in the specialty, can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input.
- Is at the level at which one would expect a newly qualified medical ophthalmologist to function.
- Is capable of supervising trainees.

3. The Assessment Framework

A. The Consultant Trainer's Report

At the end of each 6 month rotation each Consultant Trainer documents a summative report on the trainee's performance. It should be based on the initial personal development plan, include reference to completed WBAs and provide feedback on the trainee's professional and interpersonal skills. It is an important component of the CAPA process.

B. Workplace-based assessments

Workplace-based assessments (WBAs) encompass the assessment of skills, knowledge, behaviour and attitudes during day-to-day ophthalmic practice. WBAs have a significant impact on learning by providing feedback to trainees regarding the current level of their practice. They also inform the summative assessment at the completion of each 6-month rotation and contribute towards the documentation of the attainment of curricular outcomes which forms an important part of the CAPA process.

Types of Workplace- based Assessment used

- CBD
- Mini-CEX
- DOPS
- Multi Source Feedback (Peer Assessment Tool)

WBAs per rotation - The number of types and intensity of each type of WBA in any 6 month rotation is determined by the curriculum. A minimum number of three WBAs per 6-month clinical placement is indicated in BMT1 – BMT3 training. The content is based on key fundamental knowledge and skills for ophthalmic practice appropriate to each year of training. A detailed content-specific descriptor is embedded in each WBA to highlight the standard required. Each candidate is required to submit a total of 13 Workplace Based Assessments forms over the first five semesters of Basic Medical Training (BMT1A, 1B, 2A, 2B & 3A).

Workplace Based Assessments in Basic Medical Training

BMT1a	1 Clinical WBA:	Mini CEX (Cataract) or Mini CEX (PVD)
	2 Procedural WBA:	DOPS (Fundal) or DOPS (Gonio Glaucoma) DOPS (I+C Meibomian Cyst) or Refraction (Adult)
BMT1b	1 Clinical WBA:	Mini CEX (Cataract) or Mini CEX PVD
	2 Procedural WBA:	DOPS (Fundal) or DOPS (Gonio Glaucoma) DOPS (I+C Meibomian Cyst) or Refraction (Adult)
BMT2a	1 Clinical WBA:	Mini CEX (Microbial Keratitis) or Mini CEX (ARMD)
	1 Procedural WBA:	Refraction (paed), S+P or PRP
BMT2b	1 Clinical WBA:	Mini CEX (Microbial Keratitis) or Mini CEX (ARMD)
	1 Procedural WBA:	Refraction (paed), S+P or PRP
BMT3a	2 Clinical WBA:	Mini CEX (Ocular Motility) and Mini CEX (DME)

1 Procedural WBA: Refraction (paed), S+P or PRP

It is a trainee's responsibility to ensure that all WBA forms are submitted to the ICO by the deadline in each semester.

C. School for Surgeons and Interactive Classrooms

Assessment of knowledge & understanding as well as analysis and application of knowledge across key topics of the basic curriculum by case-based discussions, critical review of the literature, MCQs etc. The topics are arranged to involve both basic fundamental aspects of knowledge as well as higher level learning including relevant randomized control trials, literature searches and reviews as well as and evidence based approaches to clinical management. The 8 subspecialty categories of the curriculum - Oculoplastic, adnexal and lacrimal, Cornea & External Disease, Cataract & Refraction, Glaucoma, Vitreoretinal Disorders including Medical Retina, Neuro-ophthalmology, Paediatric Ophthalmology & Strabismus, Accident and Emergency Ophthalmology.

Trainees are obliged to submit 60% of all assignments. Four assignments are scheduled and graded per semester. An e-Interactive Classroom using the flipped classroom model is scheduled after each assignment is completed in order to deliver feedback and augment deeper learning including critical appraisal of the literature.

D. Examinations

FRCOphth Part 1 Written Exam

Trainees must pass the FRCOphth Part 1 exam in order to be eligible to sit the MRCSI (Ophth) Part 2 exam. The Royal College of Ophthalmologists (RCOphth) UK are the training body that run the FRCOphth Part 1 exam. It is possible to sit the exam in multiple locations in the UK and in Dublin. Further information is available from the [RCOphth website](#).

Refraction Exam

The Refraction Exam can constitute either the MRCSI (Ophth) Clinical Optics and Refraction examination or the FRCOphth Refraction Certificate examination.

- **The FRCOphth Refraction Certificate examination**

The FRCOphth Refraction Certificate examination is hosted by the Royal College of Ophthalmologists in the UK. It is held multiple times per year. Further details are available on the RCOphth website here: <https://www.rcophth.ac.uk/examinations/refraction-certificate/>

- **MRCSI (Ophth) Clinical Optics and Refraction Examination**

The (MRCSI (Ophth) Clinical Optics and Refraction Examination) is hosted in Dublin by the

Royal College of Surgeons in Ireland (RCSI). For further details on the exam are available on the [RCSI exams website](#).

Membership of the Royal College Surgeons in Ireland in Ophthalmology

The membership of the Royal College of Surgeons in Ireland in Ophthalmology (MRCSI (Ophth) is a summative assessment. It assesses knowledge and skills that are encompassed within the basic syllabus to which the MRCSI (Ophth) syllabus is mapped. The purpose of the MRCSI (Ophth) examination is to determine if trainees have acquired the knowledge, skills and understanding required to be a junior registrar (skills necessary to work with a degree of clinical independence in all areas of ophthalmology but under the supervision of a senior clinician/consultant ophthalmologist).

The MRCSI (Ophth) assesses knowledge and applied knowledge in the generality of ophthalmic training. The examination consists of two parts, Part I and II as well as the Refraction Certificate. The FRCOphth Part I and the Refraction Certificate must be successfully completed before applying to sit Part II.

The MRCSI Part II examination is a formal exit requirement from BMT3 Training. It is also a mandatory requirement for entry into HMT4 training.

* The MRCSI Part I has been replaced by FRCOphth UK Part I as of July 2015. Further information on the MRCSI examination is available from the RCSI Examination office and website. Please note: 6 attempts are allowed for FRCOphth Part 1 and 4 attempts are allowed for MRCSI Part II.

Information on the MRCSI (Ophth) exam is available at <https://www.rcsi.com/dublin/professional-cpd/professional-exams/ophthalmology>

E. Human Factors Programme Objective Structured Clinical Examination

The Human Factors syllabus is mapped to the good professional practice framework and the programme is delivered by acknowledged experts from the RCSI. The different modules focus on the areas of leadership and professionalism, interpersonal skills and conflict resolution, crisis management, causes and avoidance of errors, stress management and time management.

A Human Factors OSCE to assess the acquirement of advanced communication skills and professionalism is held at the end of BMT Yr 1 and 2.

F. Clinical Cases Logbook for BMT

Detailed documentation of presentation, diagnosis and management as well as a literature review of best practice as applied to clinical cases (a minimum of 8 cases in BMT) from the different ophthalmic subspecialties including emergency and neuro-ophthalmology cases.

The purpose of the Clinical Cases Logbook is to encourage deep understanding and evidence-based learning of common conditions in Basic Medical Training and of atypical, complex and / or complicated cases in Higher Medical Training. It is essential that during Basic Medical Training each trainee collects **8 cases** across the breadth of ophthalmic practice. There is a specific emphasis on neuro-ophthalmology which can be a life threatening as well as a sight threatening presentation. Each case must be described with reference to presentation, differential diagnosis, investigations, initial treatment, further investigation, evidence-base used for treatment with reference to relevant RCTs or case series (if rare, presentation) and final outcome.

1 managed case of glaucoma:	POAG, NTG or OHT
1 managed case of uveitis:	Anterior or posterior
1 managed cases of childhood strabismus:	Esotropia or exotropia
2 managed cases of acquired strabismus:	IV or VI CR N palsy, III CR N palsy
2 managed cases of neuro-ophthalmology:	CST or GCA or Horner's Syndrome
1 managed cases of anterior segment:	Herpetic or microbial keratitis

G. eLogbook.

The logbook is the trainee's record of all procedures performed on patients. Trainees record their level of involvement in a procedure and the supervision received using the descriptors. A minimum number of index procedures / lasers / refractions must be carried out during basic and specialty training.

H. Audit.

Assessment of audit reviews a trainee's competence in completing the audit cycle. Trainees should complete at least 4 audits during the BMT1 – 3. Audits should ideally be completed at both national and local level.

Competence and Assessment of Performance Appraisal

Purpose - The CAPA Process is an evaluation tool which is designed to assess the progress of trainees. The CAPA scrutinises each trainee's suitability to progress to the next stage of, or complete, the training programme. It bases its recommendations on the evidence that has been gathered in the trainee's learning portfolio during the period between CAPA reviews.

The CAPA is not in itself an assessment exercise of clinical or professional competence but records that the required curriculum competences and experience are being acquired, and that this is at an appropriate rate by providing a coherent record of a trainee's progress across multiple areas (clinical skills, assessments, presentations / publications and audit and examinations) by the end of their training.

The CAPA takes place on a 6 monthly basis for all trainees. The trainee's learning portfolio provides the evidence of progress. It is the trainee's responsibility to ensure that the documentary evidence is completed in adequate time for the CAPA. The Dean will monitor

trainees' progress to ensure that a programme of remediation will, if necessary, be provided to assist individual trainees to successfully complete their training.

The CAPA Panel includes the Dean, assigned Educational Supervisors and Consultant Trainers.

Curricular Outcomes measured at the CAPA:

- The Consultant Trainer's report
- Workplace-based assessments
- CAPA A
- School for Surgeons
- Examinations
- Medical Cases Casebook
- eLogbook
- Audit – National and Local
- Courses

CAPA Outcomes – Six outcomes are possible

1. Achieving progress and competences at the expected rate and should progress to the next grade.
2. Development of specific competences required – additional training time not required.
3. Inadequate progress by the trainee – additional training time required.
4. Inadequate participation in the compulsory components of the National Training Programme - additional training time required.
5. Released from training programme with or without specified competences.
6. Gained all required competences; will be recommended as having completed the training programme and for an award of a CCBMT.

E. Competency Points

Exams and assessments during BMT1, BMT2 & BMT3

Fellowship Royal College of Ophthalmologists Part 1

The FRCOphth Part 1 examination is hosted by the Royal College of Ophthalmologists (RCOphth) in the UK. The exam assesses an applicant's understanding of patient investigations and knowledge of basic and clinical sciences relevant to ophthalmology.

Trainees must pass the FRCOphth Part 1 exam in order to be eligible to sit the MRCSI (Ophth) Part 2 exam.

Membership of the Royal College of Surgeons in Ireland (Ophthalmology)

The membership of the Royal College of Surgeons in Ireland (Ophthalmology) or MRCSI (Ophth) is comprised of three components: The Part 1, the Clinical Optics and Refraction examination or the Refraction Certificate examination) and the Part 2 written & clinical

examination. All three components must be passed in order to successfully complete BMT. Performance in the MRCSI (Ophth) Part 2 written & clinical examination contributes to the scorecard to enter HMT.

F. Progression in BMT

1. Competence, Assessment & Performance Appraisal

The CAPA is an evaluation tool, which is designed to assess the progress of trainees. The CAPA scrutinises each trainee's suitability to progress to the next stage of, or complete, the basic training programme by providing a coherent record of a trainee's progress across multiple areas (clinical skills, procedural skills, work-place based assessments, School for Surgeons online assignments, Human Factors in Patient Safety, audit & examinations).

The CAPA takes place on a 6-monthly basis for all trainees. Trainee submitted assessment forms provide the evidence of progress. It is the trainee's responsibility to ensure that the documentary evidence is completed in adequate time for the CAPA.

2. Remediation during BMT

A programme of remediation will be offered during BMT.

The Dean of Postgraduate Education will monitor trainees' progress and provide remediation where necessary in order to support individual trainees to successfully complete their training.

3. Leave during training rotations in BMT

Any period of unplanned leave, beyond the normal entitlement to study and annual leave, may interrupt the acquirement of skills during each 6 month rotation. Therefore, a period of unplanned leave in excess of 2 weeks per 6 months, may require a further period of training to be undertaken.

4. Completion of Basic Medical Ophthalmology Programme

BMT is a 3 year programme. The programme must be completed within 5 calendar years of the trainee's start date. This is to ensure that the defined milestones of the programme are acquired at an intensity of training, which optimises the achievement and retention of the programme's learning outcomes.

G. Award of the Certificate of Completion of Basic Medical Ophthalmology Training

On successful completion of BMT training, trainees are issued with Certificate of Completion of Basic Medical Training (CCBMT). The criteria for eligibility for the CCBMT are as follows:

1. Successful completion of BMT1, BMT2 and BMT3 with satisfactory CAPA appraisals for *each* 6 months
2. Satisfactory achievement of all WBAs at each competency point
3. Successful award of the MRCSI
4. Successful completion of the Human Factors in Patient Safety programme and HF OSCEs
5. Successful completion of School for Surgeons assignments & Interactive Classroom attendance
6. Validated procedural logbook to include minimum numbers*
7. Successful completion of the Medical Cases Casebook
8. Audit as per the BMT curriculum (minimum of 4 audits)
9. Documented attendance at obligatory ICO courses & study days

* Minimum numbers:

- a. 150 intravitreal injections
- b. 30 panretinal lasers and 5 macular lasers.
- c. 20 YAG capsulotomy lasers, 5 YAG laser PIs
- d. 50 minor procedures (S+P, I+C, lesion excision and biopsy etc)
- e. Refraction x 60 cases (Adult 30 cases & 30 Paediatric cases)

Section 3: Higher Specialist Training in Medical Ophthalmology

A. Framework of Higher Training in Medical Ophthalmology

The *purpose* of HMT is to provide in-depth training to equip trainees with skills to practice independently as medical ophthalmologists and to deliver an emergency and subspecialised service. The programme takes a modular approach and is framed around the three subspecialties at the core of independent practice - medical retina, glaucoma and paediatric ophthalmology. Trainees, irrespective of preference and future career choice, must complete all three modules to successfully complete the training.

The HMT modular curriculum defines the final stage in the development of competent medical ophthalmic practitioners. Each stage is underpinned by explicit outcome standards. Trainees focus on higher order outcomes and meta-competences, which are relevant to the three subspecialties. This will facilitate subspecialisation in his or her subsequent career. These are defined as **specialty-specific competences**. They are clearly outlined in the Specialty-Specific Syllabus. To attain specialty-specific competences, requires the assessment of depth of knowledge, skills and judgement. This is achieved with regular WBAs, with case based discussions (CBD), clinical evaluation exercise (mini-CEXs) and direct observational procedures (DOPs) scheduled into each 6 month timetable (4 WBAs will be summative). This documents advancement through the various stages of training in the domains of specialty-knowledge, clinical and technical skills as well as professional behaviour and judgement. The teaching, learning and assessment timetables which underpin the delivery of the HMT4 and HMT5 curriculum, reflects a more intensive approach, through an increase in complexity and a deeper and broader scope of practice. The structure and content is therefore based on progression, increasing in both depth and difficulty, through to the completion of training.

Parallel to acquiring clinical competences, the ICO recognises the importance of identifying and acquiring generic competences in professionalism and patient safety as well as in academia, evidence based medicine, critical appraisal and data analysis. The Human Factors in Patient Safety course is delivered in HMT4 and HMT5. A Research Methodology course is delivered in HMT4 & HMT5.

B. Entry into Higher Training in Medical Ophthalmology

Trainees who are nearing the completion of BMT, who have met the minimum criteria can compete to enter HMT.

Success in the selection process for the HMT training programme is determined by a combination of a cumulative scorecard (accrued during BMT years 1 – 3) and a multi-station interview held centrally. The selection process is competitive. Candidates will have two opportunities to compete to enter HMT.

Minimum Criteria for application to HMT4 Training in Medical Ophthalmology

1. Successful completion of BMT1, BMT2, BMT3a.
2. Satisfactory CAPA appraisals for BMT1, BMT2, BMT3a.
3. Satisfactory achievement of all WBAs at each competency point
4. Successful completion of the MRCSI Examination
5. Successful completion of the Human Factors OSCEs Examination
6. Successful completion of the School for Surgeons assignments
7. Validated logbook to include minimum number of procedures*
8. Successful completion of Clinical Cases Casebook
9. Audit as per BMT curriculum - minimum requirement of 4.
10. Documented attendance at obligatory ICO courses & study Days.

*Minimum numbers

- a. 150 intravitreal injections
- b. 30 pan-retinal lasers and 5 macular lasers.
- c. 20 YAG capsulotomy lasers, 5 YAG laser PIs
- d. 50 minor procedures (S+P, I+C, lesion excision and biopsy etc)
- e. Refraction (Adult 30 cases & 30 Paediatric cases)

Marking Scheme for Entry to HMT

The following are the components, which will be scored for competitive entry into the Higher Medical Training programme. Minor adjustments can be made to the scorecard and will be highlighted to you on the SFS website.

There will be 3 components:

- A. Performance during BMT Yr 1-3 scorecard (650 marks)
- B. Pre-scoring of Commitment to Academic Advancement & Life-long Learning - Academic Section (50 marks)
- C. Interview scorecard (300 marks)

A. Basic Medical Training 65% (650 marks)

Clinical Performance

The scorecard for performance during BMT will be based on scores attained in BMT in the following:

- *Workplace Based Assessments 14%*
- *School for Surgeons 5%*
- *Human Factors 10%*
- *Procedural Logbook 12%*
- *Clinical Casebook Portfolio 4%*
- *MRCSI 15%*
- *Audit 4%*
- *Prizes 1%*

A score of 60% across the totality of the scorecard is required in order to pass and be eligible for interview.

Workplace Based Assessments: (14%)

Each candidate is required to submit Workplace Based Assessment (WBA) forms over the first five semesters of Basic Medical Training (BMT1A, 1B, 2A, 2B & 3A). These WBA forms and their scoring allocation are outlined below. A minimum score of 50% must be achieved on each individual WBA.

Refraction (3%)

(1.5% per WBA)

Paediatric Refraction 1.5%

Adult Refraction 1.5%

DOPS Procedural (3%)

(1% per WBA)

- 1 S+P (Syringe & Probe)
- 2 PRP (Laser pan-retinal photocoagulation)
- 3 I+C (Incision & curettage)

DOPS Clinical (2%)

(1% per WBA)

- 1 Gonio / GAT Glaucoma Skills
- 2 Fundal Skills

Mini-Cex (6%)

(1% per WBA)

- 1 PVD (Posterior Vitreous Detachment)
- 2 Cataract
- 3 ARMD (wet)
- 4 MK (Microbial Keratitis)
- 5 EOM (Ocular Motility)
- 6 DME (Diabetic Macular Edema)

It will be the responsibility of the candidate to ensure that all WBA forms are submitted to the ICO by the deadline in each semester.

School for Surgeons SFS (5%)

Cumulative scores for completed School for Surgeons completed assignments / MCQs are assigned per semester up to a maximum of 5% e.g. 100% school for surgeons score awarded in semester BMT1A gets 1%, 50% score is awarded 0.5% etc. A minimum score of 60% must be achieved in each semester. Any submitted assignment may be subsequently utilised for discussion during a candidate's interview at the Clinical Decision Making station.

(1% per semester)

- ST1A Assignments and MCQ
- ST1B Assignments and MCQ
- ST2A Assignments and MCQ
- ST2B Assignments and MCQ

ST3A Assignments and MCQ

Human Factors (10%)

Cumulative scores for attendance at Human Factors modules and completion of yearly OSCE should be assigned per training year (BMT1 and BMT2) up to a maximum of 10%. A minimum pass score (usually 50% but set each year by RCSI) must be achieved at the BMT1 and BMT2 OSCE.

(5% per training year)

BMT1 Attendance & OSCE

BMT2 Attendance & OSCE

Consolidated Logbook (12%)

Candidates will be required to submit a validated consolidated logbook. Candidates should note that submission of false or misleading information on their consolidated logbook sheet will lead to automatic disqualification from the HMT selection process. Within each specialty, two nominated persons will assess and score all of the submitted consolidated logbooks and will compile a report for the shortlisting committee. Trainees should also provide a copy of their eLogbook with their application.

The 12% allocated for the consolidated logbook is made up of three parts:

1. Intravitreal injection Procedures (2%)
2. Refractions (2%)
3. Minor Procedures / Nasolacrimal / Lid Procedures (4%)
4. Lasers (4%)

Clinical Casebook (4%)

8 cases, across the breadth of ophthalmic practice, are to be collected. There is a specific emphasis on neuro-ophthalmology which can be a life threatening as well as a sight threatening presentation. Each case must be described with reference to presentation, differential diagnosis, investigations, initial treatment, further investigation, evidence based use for treatment with reference to relevant RCTs or case series (if rare, presentation) and final outcome. The forms for the Clinical Cases Logbook are available on the SFS website.

Clinical Cases Logbook to be completed during BMT for entry into HMT are below:

- | | |
|--|---|
| 1 managed case of glaucoma: | POAG, NTG or OHT |
| 1 managed case of uveitis: | Anterior or posterior |
| 1 managed cases of childhood strabismus: | Esotropia or exotropia |
| 2 managed cases of acquired strabismus: | IV or VI CR N palsy, III CR N palsy x 1 |
| 2 managed cases of neuro-ophthalmology: | CST or GCA or Horner's Syndrome |
| 1 managed cases of anterior segment: | Herpetic or microbial keratitis |

NB: Content from each candidate's **Clinical Casebook** may be utilised for discussion during the interview at the Clinical Decision-Making Station.

MRCSI (15%)

Marks for the MRCSI Exam are awarded based on performance of the Part A Written exam and the Part B Clinical exam as below:

2.5% Part A Written
12.5% Part B Clinical

A minimum score of 50% must be achieved in the written and the clinical.

*For Part A Written - The allocated marks for each part of the exam may alter slightly from year to year. Candidates will be informed in advance.

Audit (4%)

Audits must be described as open, closed or pilot, with clear details of the relevant intervention and the international / national standard or benchmark where appropriate. 1% is awarded for each audit, up to a maximum of 4%. If an audit has been published, candidates must ensure to include the audit in both the audit section and the publication section. Marks will not be awarded for an audit if it is only listed in the publications section of the application form. There is a minimum requirement of 4 audit cycles.

Prizes and Grants for Research (1%)

The maximum score under this section is 1%. A mark of 0.5% to 1% may be awarded for international research prizes or grants depending on the nature of prize. A mark of 0.25% to 0.5% may be awarded for national research prizes or grants depending on the nature of prize. A mark of 0.125% may be awarded for School for Surgeons prizes.

SFS 0.125%
Nat: 0.25% – 0.5% (depending on nature of prize)
Intl: 0.5% – 1.0% (depending on nature of prize)

Marks for research grants will only be given for grants awarded by a recognised research funding body to actually conduct research (e.g. Health Research Board grants) and will not be awarded for travelling fellowships (unless such fellowships specifically include funding to conduct research abroad) or for industry sponsored grants.

Marks in this section may be cumulative, up to a maximum of 1%. Candidates must provide details about the prize/award to be eligible for marks.

B. Pre-scoring of Commitment to Academic Advancement & Life-long Learning - Academic Section 5% (50 marks)

A maximum of 5% may be awarded in this section. It is theoretically possible for candidates to accumulate more than 5% based on thesis, publications and presentations but the maximum mark which may be awarded stands at 5%.

The cut-off date for the award of marks in this section will be the date of shortlisting. Under no circumstances will marks be given after that date based on accepted thesis, publications or presentations.

Marks are only awarded for degrees or diplomas, which are awarded by universities or educational establishments, recognised by the Irish Medical Council or by the Royal College of Surgeons in Ireland. Marks are only awarded for a degree obtained during BMT and not awarded for any degree obtained during medical school or prior to commencement of Basic Medical Training.

Marks in this section are not cumulative, and candidates will only be credited for the highest scoring degree. For example, if a candidate has an MD degree (3.25%) and also a medically relevant MSc degree (2%) their total score in this section will be 3.25%.

Higher Degree by Thesis

Awarded:

PhD 3.75%

MD 3.25%

Mch 2.5%

MMedSc / other Masters 2%

Online Masters (theory only): 1.5%

Submitted with verification: 1.25%

Candidates who have completed a Thesis must submit a summary of the Thesis with the application process. Candidates who have been awarded a Higher Degree by Thesis through a non-Irish University must produce sufficient documentation to satisfy the Shortlisting Committee that their Thesis is equivalent to a Thesis, which would be submitted to an Irish University.

Relevant Diplomas

A mark of up to 0.50% may be awarded for medically relevant diplomas.

Marks are only awarded for diplomas which are awarded by universities or educational establishments recognised by the Irish Medical Council or by the Royal College of Surgeons in Ireland. Marks are only awarded for a diploma obtained during Basic Medical Training.

Marks in this section are not cumulative, and candidates will only be credited for the highest scoring degree. For example, if a candidate has an MD degree (3.25%) and also a relevant MSc degree (2%) their total score in this section will be 3.25%.

Publications

Publications and presentations will only be accepted if they were carried out during Basic Medical Training i.e. after the official date of entry into Basic Training in Medical Ophthalmology.

A candidate may submit any number of publications for consideration for scoring. However, the maximum mark of 5% for this entire section stands. Only publications in peer reviewed scientific journals will be considered. The marks allocated will be based on the impact factor of the journal as follows:

Impact factor $\leq 1 = 0.25$

Impact factor $\leq 2 = 0.5$

Impact factor $\leq 3 = 1.0$

Impact factor $\leq 4 = 1.5$

Impact factor $\leq 5 = 2.0$

The full mark described above will be awarded for first author or senior author; one half of that mark will be awarded for second author. All publications for consideration must have a PMID number submitted with the application. If the publication is not yet on PubMed, there must be a letter of acceptance from the editor of the journal submitted with the application.

Book Chapters: 0.5%-1% depending on the publication - First Author (Must include ISBN number of book)

Invited Review Articles: 0.5%-1% depending on the journal

Case Reports: 0.25% (Irrespective of the impact factor of the journal)

Candidates may not be rewarded twice for a presentation, which is published automatically because it has been presented at a surgical meeting. No points will be awarded for abstracts.

Presentations

A candidate may submit any number of presentations for consideration for scoring. However, the maximum mark of 5% for this entire section stands. Presentation at a national meeting will receive a mark of 0.25% and presentation at an international meeting will receive a mark of 0.50% - irrespective of whether it is a Poster or Case Report. Marks are only awarded if the candidate has actually made the presentation at the meeting. No marks are awarded for being a co-author of a presentation.

C. Interview 30% (300 marks)

The interview is the final stage of the selection process for Specialty Training. The interview will follow a Multiple Mini Interview (MMI) format. The overall purpose of the interview is to assess the general suitability of each candidate for progression to Specialty Training. The interview process is designed to capture elements of suitability, which have not previously been assessed in performance during Basic Medical Training or in the MRCSI examination.

The MMI format will be used to give a comprehensive assessment of a wider range of general suitability characteristics. A minimum score of 60% must be achieved.

A score of 60% across the totality of the scorecard is required in order to pass and be eligible for interview.

Interviews will be conducted by a properly constituted interview panel, according to the ICO Education, Training and Manpower Committee. The interview panel may only award marks for the interview and may not under any circumstances change marks already allocated to other sections at the shortlisting meeting. All documents relating to the selection process will remain in the possession of ICO. A maximum global mark of 30% may be awarded at interview.

The interview will cover a broad range of areas related to suitability for Specialty Training. These can be grouped under five principal headings:

1. Quality and Safety in Healthcare (70 Marks)

Purpose: The purpose of this station is to assess the candidate's awareness and commitment to quality and safety issues in the provision of surgical care.

Indicative Content: Audit. Incident reporting systems. Risk registers / risk management systems. Medical and surgical error. Clinical governance. Continuous Quality Improvement. MDT meetings. Handovers

2. Commitment to Academic Advancement and Lifelong Learning

(20 Marks + 50 Marks from Pre-Scoring Commitment to Academic Advancement & Lifelong Learning - Academic (see section B above))

Purpose: The purpose of this station is to assess the candidate's commitment to maintaining up to date knowledge and professional competence.

Indicative Content: Review of case-book portfolio. Attendance at relevant meetings and courses. Presentations and publications. Teaching activities. Involvement in clinical research.

3. Knowledge of Current Issues Relevant to Medical Ophthalmology Practice (70 Marks)

Purpose: The purpose of this station is to assess the candidate's knowledge and awareness of issues (other than clinical knowledge and technical skill) which may impact on delivery of good ophthalmic care.

Indicative Content: The Clinical Programme/ Model of Care. The Primary Eye Care Review 2017. Slaintecare. Integrated Care Pathways. Hospital Networks. Universal Health Insurance. European Working Time Directive / shift working.

4. Clinical Decision Making in Ophthalmology (70 Marks)

Purpose: The purpose of this station is to assess the candidate's ability to utilise knowledge and skills in making sound clinical judgements for patient management relevant to the specialty in question.

NB: Content from submitted SFS assignments and the candidates Clinical Casebook may be utilized for discussion during this station.

Indicative Content: 2/3 Clinical Scenarios, 3-4 minutes each.

5. Professionalism & Probity in Medical Ophthalmology Practice (70 Marks)

Purpose: The purpose of this station is to assess the candidate's awareness and commitment to professional and ethical behaviour in surgical practice.

Indicative Content: Regulation of the medical profession (Medical Council / Fitness to Practice process). Ethical behaviour for doctors. Patient advocacy. Disclosure of error. Clinical research ethics. Introduction of new technology to ophthalmic practice. Data protection.

Each interviewer will mark each candidate at the end of each interview by silent voting. The mark sheets for each candidate will then be collected and the marks awarded by each interviewer will be displayed at the end of the interview process. Any significant discrepancies in marking will be discussed by the Chairman. A list of suggested questions for the various topics of the interview will be presented to the interview panel. However, these questions are simply for assistance to interviewers and are not mandatory questions. Interviewers are free to ask any questions they like related to the headings to be marked.

At the end of the selection process, the marks obtained in each section will be added together to give the total mark in the selection process. Candidates will then be ranked and will be appointed according to their rank and the number of positions available.

A second chance option is available for candidates who do not proceed to HMT on their first attempt.

Clinical Rotations for HMT4 & HMT5

All training posts for HMT are located in recognised teaching units. Specific modular allocations are determined for each trainee by the ICO, in the areas of paediatric ophthalmology, glaucoma and medical retina.

C. Subspecialty Modules for Higher Training in Medical Ophthalmology

The curriculum is designed around three modules in the specialty areas of medical retina, glaucoma and paediatric ophthalmology. The modules in glaucoma and paediatric ophthalmology are of 6 months duration. The medical retina module is of 12 months duration.

Generic Timetable: 4 subspecialty sessions, 1 laser session, 1 virtual or minor ops, alternate injection list, 2 general sessions (eye casualty, RAC, gap specific*), 1 RSTA. Second on-call activities excluding surgical trauma.

*It is recommended that any deficits in skills or specific areas of interest, are discussed by the trainee/trainer and the timetable adjusted accordingly. Sessions can include virtual or imaging clinics.

A. Framework of Module 1: Medical Retina Module

Timetable

Diabetic retinopathy clinic x 1, retinal laser session x 1, medical retina clinic x 2 with a good case mix and a case load of 10-12 patients per trainee per session, intra-vitreous injection list

(IVTx) x 1, FFA /OCT session x 1(incorp), eye casualty session x 2, RSTA x 1, other* x 1.
Second-on-call activities excluding surgical trauma.

*Can be minor ops, RAC clinic, consultation clinic, specialty clinic in neuro-ophthalmology, care pathway design session in integrated eye-care unit, virtual clinic etc. It cannot be another eye casualty session.

Training sessions may be allocated to integrated eye-care based practice, dependent on the training opportunities available, the provision of a common IT network, training opportunities and adequate resources are available.

Teaching and Learning Framework Core Activities

- Review of randomised controlled trials (RCTs) in major topics of age-related macular degeneration (ARMD), diabetic retinopathy (DR), diabetic maculopathy (DME) and retinal vein occlusions (RVOs).
- Monthly teaching of RCTs.
- Presentation at online teaching programme (SFS).

Assessment of Specialty-specific competences

- 4 WBAs must be summative
- CBDs /mini-CEX in ARMD, DR, DME, RVO.
- DOPs: Index procedures: intra-vitreous injections, retinal laser (macular grid, pan-retinal photocoagulation (PRP), and retinal imaging analysis.
- Clinical Cases: index clinical cases from diagnosis/treatment /outcome.
- Audit (one audit must be completed per year in HMT4 and HMT5).

Higher Medical Retina: Timetable for core activities & WBAs months 1 - 6.

Timeline	Month 1 & 2	Month 3 & 4	Month 5 & 6	Month 6
Topic:	Topic: AREDS	Topic: ARMD (wet)	Topic: CRVO/BRVO	Topic: Review of progress
EB* Learning	NHx / RCTs AREDS I AREDS II	NHx / *RCTs MARINA / PIERS IVAN CATT LUCAS / SEVEN-UP FIDO / FRB / LUMINOUS / UK EMR Study / Rainbow EVEREST I & II PLANET / HAWK ATLANTIC	NHx / *RCTs C/BRVO Study BRAVO BRIGHTER CRUISE CRYSTAL HORIZON RETAIN COPERNICUS / GALILEO GENEVA / CRAVE MARVEL / LEAVO	
EB Teaching	NHx / RCTs	Teach NHx / RCTs	Teach NHx / RCTs	

WBAs	Evidence or CBD or mini-CEX Dry ARMD	Mini-CEX or CBD (complex CNV)	CBD C/BRVO	
WBAs	DOPs FFA/OCT/A Interpretation		DOPs PRP	DOPs FAF/ ICG interpretation

Higher Medical Retina: Timetable for core activities and WBAs months 6 - 12.

Timeline	Month 7 & 8	Month 9 & 10	Month 11	Month 12
Topic:	Topic: DR	Topic: DME	Topic: Prep for SOE	Topic: Prep SOE
EB Learning	*RCTs ETDRS Study DRS Panorama Clarity DRCR.net RCTs	*RCTs RESOLVE/RESTOR E/RETAIN RISE/RIDE VISTA/VIVID, BOLT DRCR.net RCTs	Mock exam	
EB Teaching	Teach NHx / RCTs	Teach NHx / RCTs		
WBAs	CBD or mini-CEX BDR/PDR	Evidence or CBD or mini-CEX DME		
WBAs		DOPs Macular Focal / Grid Laser	DOPs EP interpretation	ICO Medical Retina SOE Assessment

- *EB* Evidence Based, NHx Natural History, SOE Standardised Oral Examination*
- *4 WBAs per 6 months, chosen across the breadth of the MR curriculum, must be completed.*
- **RCT inclusion / exclusion criteria, primary & secondary outcomes only required. EURETINA Guidelines, RCO Guidelines, systematic reviews provide excellent summaries of RCTs.*

B. Framework of Module 2: Glaucoma Module

Timetable

Glaucoma specialty clinics x 3 with a good case mix and a case load of 10-12 patients per trainee per session, virtual clinic x 1, YAG Laser / SLT Laser x 1, General clinic x 1, RSTA x1, A/E session x 2, other* x 1. Second-on-call activities excluding surgical trauma.

*Can be minor ops, virtual clinic, PAC clinic, consultation clinic, specialty clinic in neuro-ophthalmology, general clinic, paediatric clinic. Cannot be another eye casualty session.

Training sessions may be allocated to integrated eye-care based practice, dependent on the training opportunities available, the provision of a common IT network, training opportunities and adequate resources are available.

Teaching and Learning Framework Core Activities

- Review of randomised controlled trials (RCTs) in major topics of ocular hypertension (OHTS), normal tension glaucoma (NTG) early and advanced primary open angle glaucoma (POAG), pseudo-exfoliative glaucoma (PXF) and angle closure glaucoma (ACG).
- Monthly teaching of RCTs.
- Presentation at online teaching programme (SFS).

Assessment of Specialty-specific competences

- 4 WBAs must be summative
- CBDs and mini-CEXs in OHT, NTG, POAG, PXF, ACG.
- DOPs: Index procedures: gonioscopy, selective laser trabeculoplasty (SLT), YAG laser peripheral iridotomy (PI), optic nerve head assessment, OCT analysis.
- Clinical Cases: index clinical cases from diagnosis/treatment /outcome.
- Audit (one audit must be completed per year in HMT4 and HMT5).

Glaucoma Module: Timetable for core activities & WBAs.

Timeline	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic:	Topic: OHT	Topic: NTG	Topic: ONH analysis	Topic: POAG/PXF	Topic: AACG PACG	Topic: Prep for SOE
EB Learning	RCTs OHTS I & II	RCTs CNTG NYGS		RCTs AGIS CITGS EMGT PXF Study	RCTs EAGLE ZAP ANA-LIS	
EB Teaching	Teach RCTs	Teach RCTs		Teach RCTs	Teach RCTs	
WBAs	CBD OHT / Virtual	mini-CEX NTG	CBD Disc Assessment	CBD or mini- CEX PXF	CBD or mini-CEX angle closure	
WBAs		CBD:VF analysis & progression	DOPs: Gonioscopy*		DOPs: YAG SLT*	Glaucom a SOE

- WBAs can be chosen across the breadth of the Glaucoma Curriculum. Four WBAs per 6 months must be completed and are summative.
- * mandatory WBA

C. Framework of Module 3: Paediatric Ophthalmology Module

Timetable

Paediatric Clinic (general) x 4 with a good case mix and a case load of 10-12 patients per trainee per session, minor ops/EUA session x 1, A/E session x 2, RSTA x 1, other* x 2. Second-on-call activities excluding surgical trauma.

*Can be minor ops, PAC clinic, ROP screening, specialty clinic in neuro-ophthalmology, consultation clinic etc. It cannot be another A/E session.

Training sessions may be allocated to integrated eye-care based practice, dependent on the training opportunities available, the provision of a common IT network, training opportunities and adequate resources are available.

Teaching and Learning Framework Core Activities

- Review of major RCTs in amblyopia and amblyopia management, current preferred practice guidelines in management of infantile esotropia, fully and partially accommodative esotropia as well as intermittent exotropia.
- Monthly teaching of RCTs.
- Presentation at online teaching programme (SFS).

Assessment of Specialty-specific competences

- 4 WBAs must be summative
- CBDs / mini-CEX in amblyopia, congenital infantile cataract, esotropia, exotropias, epiphora, orbital cellulitis.
- DOPs: Index procedures: paediatric refraction, cycloplegic refraction, visual examination of an infant, indirect ophthalmoscopy of an infant.
- Clinical Cases: index clinical cases from diagnosis/treatment /outcome.
- Audit.

Paediatric Module: Timetable for core activities and WBAs Months 1-6

Timeline	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic:	Amblyopia	Esodeviations	General External Eye Disease Lids / Orbit	Exodeviations	Uveitis in Children	Prep for SOE
EB Learning	RCTs Paediatric Eye Disease Investigator Group	Relevant RCTs	Relevant Consensus / Delphi Documents / Guidelines	Relevant RCTs		

EB Teaching	Teach RCTs	Teach RCTs	Teach Consensus / Guidelines	Teach RCTs	Teach Guidelines	
WBAs	Evidence Based discussion Amblyopia	DOPs* CT, refraction, examination of childhood esotropia / accomod esotropia	Mini-CEX VKC / ATKC / BKC (SFS)	DOPs* CT, refraction, examination of childhood exotropia		
WBAs	Mini-CEX Refraction Complex		DOPs* VA, CT & funduscopy in an infant – Abnormal / Normal		Mini-CEX Paediatric Uveitis	
Course	ICO Strabismus Course**					SOE

- WBAs can be chosen across the breadth of the Paediatric Ophthalmology Curriculum. Four WBAs per 6 months must be completed and are summative.
- *recommended for summative assessment
- **Obligatory Course

D. Speciality Specific Syllabus

The Speciality- Specific Syllabus (HMT4-HMT5) – identifies learning outcomes for the domains of knowledge, clinical and technical skills for each module of year HMT4 and HMT5, with specialisation to a defined level in medical retina, glaucoma and paediatric ophthalmology.

The Specialty - Specific Syllabus centres on a higher degree of specialization in the areas of medical retina, glaucoma and paediatric ophthalmology.

A: Overview

B: Subspecialties Sections

1. Medical Retina
2. Glaucoma
3. Paediatric Ophthalmology & Strabismus

Higher Training in Medical Ophthalmology HMT4-HMT5 Syllabus

A: Overview

The higher Training in Medical Ophthalmology Syllabus comprises the following components

Key learning outcomes are identified for each subspecialty section of the syllabus. The learning outcomes must be acquired by trainees before exiting the programme. Evidence of achievement of the learning outcomes is assessed via multiple methods including mini-CEX, CBD, online assignments on the SFS platform and examinations.

Whilst the HMT programme is organised around the three main subspecialties other areas such as anterior segment, neuro-ophthalmology and emergency ophthalmology are embedded throughout the training programme in the HMT timetables, second-on call duties, the clinical cases Casebook and School for Surgeons assignments. The associated learning outcomes are outlined as per the general basic syllabus and must be acquired to level 4. Relevant assessment will take place in the form of the Clinical Cases Casebook, SFS assignments, the EBOD and Structured Oral Examinations.

Index procedures refer to ophthalmic examination techniques or procedures. Direct Observation of Procedural Skills (DOPs), Supervised Structured Assessment of Operative Performance (SSAOP) and the eLogbook are employed to evidence the acquirement of technical competence. (Whole procedures or specific sections) *

Standards: The *standards* of knowledge and skill is highlighted for each section.

*Assessment of key topics and index procedures is indicated by a number beside each topic or procedure. Each number represents the category of assessment tool - as indicated below.

1. Case and Evidence Based discussions / presentations
2. Workplace Based Assessments – mini-CEX, DOPS, SSAOP
3. eLogbook
4. European Board of Ophthalmology Diploma
5. ICO Subspecialty Structured Oral Examination
6. Audit
7. Medical Cases Casebook
8. SFS Assignment

B: Subspecialties Sections

There are three subspecialty sections. The learning outcomes and index procedures are outlined below.

1. Medical Retina for Higher Training in Medical Ophthalmology

Key Clinical Competencies and Learning Outcomes:

The trainee will know or perform to exit descriptor level 4

1. MRet^{HM} LO1 Clinical evaluation of "wet" AMD, and the development of a suitable evidence-based management plan. (Linked to MRet^{BM} LO 1, 3 & 5,6) ^{1,2,4,5,6,7,8}
 - a. Knowledge of types and natural history of CNV I, II & III and associated imaging characteristics on OCT, OCTA, FFA, ICGA, FAF.

- b. Evidence-based management of CNV types I, II & III, treatment protocols, short and long term visual outcomes, RF for poor outcomes, RCT vs RWE of outcomes, complications of treatment, contra-indications to treatment, treatment futility.
 - c. Knowledge of different treatment protocols, best international practice guidelines, therapeutic agents and SEs, definitions of response to treatment, agent switch, implementation of care pathway.
 - d. Knowledge of PCV as a distinct entity, types and natural history of PCV, and associated imaging characteristics on OCT, OCTA, FFA, ICGA, FAF.
 - e. Evidence-based management (Pearl, Everest I & II, Planet, Hawk, Atlantic) of PCV including mono vs dual therapy, clinical outcomes incl. recurrence and closure rates.
 - f. PDT: technique, indications for primary & repeat selective treatments, protocols, SEs, CIs.
 - g. Evidence-based management of atypical CNV such as myopic CNV, inflammatory CNV etc
 - h. Role of OCT, OCTA.
 - i. Role of FFA and ICGA
 - j. Role of preventative treatment
 - k. Management of complications of treatment including RPE rip, endophthalmitis
 - l. A professional and clinical assessment, adapted to a busy clinical setting, with communication of diagnosis and prognosis to an elderly patient, taking into account their anxieties, communication ability and social and mental status.
 - m. An informed consent process with explanation of risks and benefits of treatment in a manner respectful and sensitive to the patient's needs as well as their social and mental status.
 - n. MARINO, PIERS, IVAN / CATT studies, LUCAS, EURETINA Guidelines.
2. MRet^{HM} LO2 Clinical evaluation of "dry" AMD, and the development of a suitable evidence-based management plan. (Linked to MRet^{BM} LO 1, 3 & 5,6) ^{1,2,4,5,6,7,8}
 - a. Knowledge of RF, staging and natural history of dry ARMD and associated imaging characteristics on OCT, OCTA, FFA, FAF.
 - b. Evidence-based management of preventative treatment, monitoring intervals and potential new treatments.
 - c. Knowledge of different types of drusen, risk of progression of same, and associated imaging characteristics on OCT, OCTA, FFA, FAF.
 - d. Knowledge of different types of PED, natural history, progression, and associated imaging characteristics on OCT, OCTA, FFA, FAF.
 - e. Knowledge of acquired adult vitelliform dystrophy, RF, natural history and associated imaging characteristics on OCT, OCTA, FFA, FAF.
 - f. Best international practice guidelines for prophylaxis and monitoring.
 - g. AREDS I & II
 3. MRet^{HM} LO3 Clinical evaluation of diabetic retinopathy, and knowledge of current evidence base leading to the development of an appropriate management plan. Diabetic retinopathy screening program including referral pathways and national standards and guidelines for treatment. (Linked to MRet^{BM} LO 1-6) ^{1,2,4,5,6,7}
 - a. Evidence-based clinical grading of DR, evidence based management of the different stages of DR, monitoring interval, risk of progression to PDR.

- b. Identification of PDR including HRC, evidence-based PRP treatment protocol for PDR, absolute and relative indications for PRP, other treatment options for PDR and comparative evidence base for same.
 - c. PRP technique including numbers of burns, burn size, placement, lens and effect of same on burn size, uni versus multi-spot and pros and cons of same, evaluation and follow-up of clinical response to PRP.
 - d. Role of UWF imaging and UWF FA in evaluating grading and ischemia in DR, relevance of PPL and implications to change to DR grading.
 - e. Role of FFA in evaluating ischemia in DR, timing, features and measurement of same.
 - f. Role of OCTA in evaluating DR, in evaluating ischemia in DR, relevant vascular complexes, relevant features and evaluation of same.
 - g. Clinical diagnosis of DME (ETDRS), OCT classification of DME (DRCR.net).
 - h. OCT diagnosis: quantitative and qualitative features of DME
 - i. Evidence based treatment of DME, first line treatments and associated protocols, definitions of response to treatment, agent comparative data, agent switch, pro and cons of treatments, SEs of treatments.
 - j. Role of laser, application technique, number and size of burn, lens, ETDRS modified, role of other laser (micropulse).
 - k. National Clinical Treatment Guidelines for DME.
 - l. Role of steroids, type of steroid, evidence base as first or second line treatment, protocol, Cis to treatment, SEs and monitoring for SEs.
 - m. Role of glucose, BP and lipid control.
 - n. Knowledge of natural history of IM, clinic evaluation and associated imaging characteristics on FFA and OCTA
 - o. ETDRS, DRS, DRCR.net, DCCT, UKPDS studies, EURETINA Guidelines, National Clinical Guidelines.
 - p. A professional and clinical assessment, adapted to a busy clinical setting, with communication of diagnosis and prognosis to a diabetic patient, taking into account their anxieties, communication ability and social and mental status.
 - q. An informed consent process with explanation of risks and benefits of treatment in a manner respectful and sensitive to the patient's needs as well as their social and mental status.
4. MRet^{HM} LO4 Clinical evaluation of central and branch retinal vein occlusion leading to the development of an appropriate evidence-based management plan including the performance and interpretation of systemic and ocular investigations. (Linked to MRet^{BM} LO 1-6, 8, 11-12) ^{1,2,4,5,6,7}
- a. Evidence-based clinical diagnosis of CRVO and differential from other hemorrhagic retinopathies.
 - b. Evidence-based clinical grading of CRVO from iCRVO, clinical evaluation and relevance of clinic signs.
 - c. Knowledge of natural history of CRVO, conversion from non-ischemic to ischemic grade, risk of development of anterior segment neovascularization, timing and diagnosis of same.
 - d. Role of FFA in evaluating ischemia in RVO, timing, phases, features, measurement metrics (DA of CNP) and tools as well as controversies and limitations of same.

- e. Evidence based management of monitoring for anterior segment neovascularization, timelines for same, monitoring interval, risk of progression to NVI / NVA and change of timeline of risk induced by anti-VEGF treatment.
 - f. Identification and evidence–based treatment NVI / NVA, PRP protocol technique including numbers of burns, burn size, placement, lens and effect of same on burn size, uni versus multi-spot and pros and cons of same, evaluation and follow-up of clinical response to PRP and role of avastin.
 - g. Evidence based management of macular oedema, RFs, natural and treated visual outcomes, role of ischemia, first line treatment protocols, comparative evidence base for anti-VEFG agents, and management of switch, definition of response.
 - h. Definition of non-response to treatment, indications for second line treatments, protocols, comparative evidence base for anti-VEFG agents versus steroids with reference to SEs and outcomes.
 - i. EURETINA Guidelines –most recent edition
 - j. BRVO, CRVO, BRAVO studies
 - k. BRIGHTER / CRYSTAL, GALILEO, COPERNICUS / GENEVA, CRAVE, MARVEL, HORIZON
5. MRet^{HM} LO5 The clinical evaluation of medical retinal disease (including Central Serous Retinopathy, macro-aneurysms, juxta-foveal telangiectasia, Coat’s disease) including natural history, imaging characteristics on OCT / OCTA / FFA / ICGA as well as blue reflectance imaging, leading to the development of an appropriate diagnosis, evidence-based management plan including the performance and interpretation of systemic and ocular investigations. ^{2,4,5,7,8}
 6. MRet^{HM} LO6 The clinical evaluation of suspected intraocular tumour, leading to the development of a suitable management plan. Lined to MRet^{BM} LO 16. ^{4,5,7,8}
 7. MRet^{HM} LO7 In-depth knowledge and application of that knowledge for the appropriate use and interpretation of fluorescein angiography, FAF, OCT, OCTA and ICGA. ^{1,2,4,5,7,8}
 8. MRet^{HM} LO8 The clinical evaluation of inflammatory retino-vascular disease including the appropriate use and interpretation of investigations for infections and non-infectious intermediate and posterior uveitis and the development of an appropriate management plan. (Linked to MRet^{BM} LO 1,5, 6, 17) ^{4,5,7,8}
 9. MRet^{HM} LO9 The appropriate use and interpretation of electro-diagnostic studies in the context of retinal disease. ^{4,5,7,8}
 10. MRet^{HM} LO 10 Management of ischaemic /exudative retinopathies including diabetic retinopathy, C/BRVO, C/BRAO, CSR, ocular ischaemic syndrome) including by laser photocoagulation, by slit lamp /indirect ophthalmoscope delivery systems / PDT. ^{2, 3}
 11. MRet^{HM} LO11 Management of maculopathies by focal and grid laser photocoagulation. Linked to MRet^{BM} LO 6. ^{2, 3}
 12. MRet^{HM} LO12 Management of retinal breaks by laser photocoagulation and cryotherapy. ^{2, 3}
 13. MRet^{HM} LO13 Management of endophthalmitis by intraocular fluid biopsy, planning an appropriate pharmacological therapeutic strategy, and the administration of intraocular drug therapy. ^{2, 3}
 14. MRet^{HM} LO14 The evaluation and management of retinal disease associated with non-specific inflammatory eye disease of the choroid (MICs PICs, MEWDs), HIV, HS / HZ(

ARN / POORN) ocular malignancy and genetic disease (RP, CAR, macular dystrophies rod / cone abnormalities).^{4,5,7,8}

15. MRet^{HM} LO15 The evaluation and management of retinal disease dealing with the systemic problems associated with diabetes, rheumatological disease, genetic disease or other relevant general medical disorders.^{4,5,7,8}
16. MRet^{HM} LO16 The evaluation and management of retinal disease associated with non-specific inflammatory eye disease of the sclera including anterior and posterior scleritis.^{4,5,7,8}
17. MRet^{HM} LO18 Low vision appliances and the social implications of blind and partial sight registration.
18. MRet^{HM} LO18 Toxic Maculopathies including hydroxychloroquine, most up-to-date screening guidelines regarding to dosing, screening interval and appropriate screening versus diagnostic investigations.^{4,5,7,8}
19. MRet^{HM} LO19 The design of referral, entry & exit care pathways, and treatment protocols for ARMD and retinal vein occlusions using evidence-based practice and international best practice and guidelines.
20. MRet^{HM} LO20 Relevant and current RCTs: Essential Reading of RCTs^{1,2,4}
 BRVO, CRVO, BRAVO studies
 BRIGHTER / CRYSTAL
 GALILEO, COPERNICUS / GENEVA, CRAVE, MARVEL, HORIZON
 MARINA, PIERS, IVAN, CATT studies
 VIEW 1 & 2, LUCAS, SEVEN UP, FIDO, Rainbow, FRB/ LUMINOUS / UK EMR Study
 EVEREST I & II, PLANET / HAWK
 ATLANTIC
 RESOLVE/RESTORE/RETAIN
 RISE/RIDE
 VISTA/VIVID, BOLT
 DRCR.net Trials, including Protocol, S, T, V, AB
 Clarity, Panorama
 DCCT, UKPDS
 ADVANCE ACCORD
 EURETINA Guidelines –most recent edition – on DME, RVOs and ARMD
 AAO 2017/ RCO Hydroxychloroquine Guidelines 2020

*RCT inclusion / exclusion criteria, primary & secondary outcomes only required. EURETINA Guidelines, RCO Guidelines, systematic reviews provide excellent summaries of RCTs.

Higher Medical Retina Index Skills (ICS)

Clinical Skills

The trainee will perform to exit descriptor level 4

- MRet^{HM} ICS 1 Examination of visual function- Logmar and Snellen acuity, Amsler Grid testing, contrast sensitivity (Pelli-Robinson chart), pupillary examination and external adnexa examination in relation to posterior segment disease.²
- MRet^{HM} ICS 2 A diagnostic examination of the vitreous to accurately detect posterior vitreous detachments, vitreous syneresis and opacities (including asteroid and hemorrhage) and vitreous inflammation (snowballs, inflammatory / pigment cells).²
- MRet^{HM} ICS 3 A diagnostic examination of the macula (90 D, 78 D) to include foveal reflex assessment, Watske-Allen test and accurately detect epiretinal membranes, retinal

thickening, choroidal neovascular membranes, drusen, retinal pigment epithelial detachment, central serous disease and macular hole.²

- MRet^{HM} ICS 4 A diagnostic examination of the peripheral retina utilising the 90 D, 78 D, 20 D, triple-mirror as well as indentation techniques & retinal drawings to correctly identify retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative), inflammatory change (snowbanking).²

Imaging Skills

The trainee will perform to exit descriptor level 4

- MRet^{HM} ICS 5 Optical Coherence Tomography and correctly interpret vitreoretinal interface, intra-retinal & sub-retinal pathology.^{2,4,5}
- MRet^{HM} ICS 5 Optical Coherence Tomography Angiography and correctly interpret vitreoretinal interface, intra-retinal & sub-retinal pathology.^{2,4,5}
- MRet^{HM} ICS 6 Fundus Fluorescein angiography and correctly interpret retinal and sub-retinal pathology.^{2,4,5}
- MRet^{HM} ICS 6 ICG angiography and correctly interpret retinal and sub-retinal pathology.^{2,4,5}
- MRet^{HM} ICS 6 ICG FAF and correctly interpret retinal and sub-retinal pathology.^{2,4,5}
- MRet^{HM} ICS 7 B-scan ultrasonography and correctly interpret patterns indicative of vitreous haemorrhage, retinal detachment, intraocular mass lesions, ocular trauma and suprachoroidal hemorrhage.^{2,4,5}

Procedural Skills

The trainee will perform to exit descriptor level 4

- MRet^{HM} ICS 8 Retinal laser (via slit-lamp) for retinal tear or pan-retinal photocoagulation for ischaemia.^{2,3}
- MRet^{HM} ICS 9 Macular laser – focal/ grid.^{2,3}
- MRet^{HM} ICS 10 Intravitreal injection / implant.^{2,3}
- MRet^{HM} ICS 11 AC tap / Vitreous Tap / Intravitreal injection of antibiotics.^{2,3}
- MRet^{HM} ICS 12 Steroid injection / implant / orbital floor technique for posterior segment disease.^{2,3}

1. Glaucoma for Higher Training in Medical Ophthalmology

Key Clinical Competencies and Learning Outcomes:

The trainee will know or perform to exit descriptor level 4

1. GL^{HM} LO1 The etiology, risk factors and pathophysiology of ocular hypertension, the risk of progression to primary open angle glaucoma, the NNT, low and high risk indicators, relevance of central corneal thickness, corneal hysteresis, risk calculator, deferral of treatment, management of resources for follow-up and monitoring (OHTS I & II).¹²⁴⁵⁸(Linked to GL^B LO1, LO2, LO3 LO4)
2. GL^{HM} LO2 The etiology, risk factors and pathophysiology of primary open angle glaucoma. (EMGT, AGIS, SEAGIS) ¹²⁴⁵⁸ Linked to GL^B LO1, LO2, LO3 LO4)
3. GL^{HM} LO3 The etiology, risk factors and pathophysiology and differences/similarities in treatment and progression rates between high-pressure and normal pressure open angle glaucoma. The importance of systemic vascular conditions in particular vasospasm and low blood pressure in NTG. ¹²⁴⁵⁸ Linked to GL^B LO1, LO2, LO3 LO4)

4. GL^{HM} LO4 The etiology, pathophysiology, risk factors and clinical course of pseudo-exfoliation glaucoma. (EMGT) ¹²⁴⁵⁸ Linked to GL^B LO1, LO2, LO3 LO4)
5. GL^{HM} LO5 The etiology, risk factors and pathophysiology of other open angle glaucoma including pigment dispersion / traumatic etc. ¹²⁴⁵ Linked to GL^B LO1, LO2, LO3 LO4)
6. GL^{HM} LO6 The etiology, risk factors and pathophysiology of primary angle closure glaucoma. (EAGLE) ¹²⁴⁵⁸
7. GL^{HM} LO7 The clinical evaluation of the drainage angle with clear knowledge of the range of normality and competence to diagnose an occludable angle with reference to appropriate literature regarding prophylactic YAG PI, its benefits and risks (EAGLE, ZAP, ANA-LISTrial). ¹²³⁴⁵
8. GL^{HM} LO8 The clinical evaluation of the retinal nerve fibre layer and optic nerve head by slit lamp biomicroscopy, with evidenced-based knowledge of the range of normality of optic nerve head topography and the relevance of inter-observer and intra-observer error in the assessment process. ^{2,4,5} Linked to GL^B LO5)
9. GL^{HM} LO9 The appropriate selection and interpretation of white on white perimetry, in relation to reliability, sensitivity and reproducibility as well as interpretation of minimum criteria and VF progression analysis. Knowledge and application of appropriate perimetric algorithms and the relevance of each. Knowledge of and interpretation of frequency doubling technology and its use in screening. Knowledge of software packages to assist in progression analysis. ¹²⁴⁵⁸ Linked to GL^B LO6,7)
10. GL^{HM} LO10 The construction and implementation of an individual management plan leading to a target IOP - grading of severity of glaucoma, life expectancy and knowledge of ocular and systemic risk factors for progression – as well as ability to assess effectiveness of therapy. ¹²⁴⁵
11. GL^{HM} LO11 The different categories of pharmacological therapy, the efficacy of each category, to advise patients knowledgeably of potential IOP lowering effect, as well as local and systemic side-effects. ¹²⁴⁵ Linked to GL^B LO9&10)
12. GL^{HM} LO12 the role of optic nerve head imaging devices especially OCT, correct interpretation and clinical application using an appropriate evidence base. ¹²⁴⁵⁸
13. GL^{HM} LO13 The role of laser trabeculoplasty (ALT / SLT), its indications, contraindications and correct technique with knowledge of correct patient selection, efficacy and complications (LIGHT). ¹²³⁴⁵
14. GL^{HM} LO14 The indications for trabeculectomy surgery. Post-operative bleb management, adjunctive metabolites to modulate wound healing and laser suture lysis. ¹²⁴⁵
15. GL^{HM} LO15 The medical management of the complications of trabeculectomy, including hypotony, flat anterior chamber, leaking bleb, blebitis, ciliary body shut-down, malignant glaucoma, choroidal effusion and hypotony. ⁴⁵
16. GL^{HM} LO16 The management of glaucoma in the presence of cataract particularly in the setting of acute and chronic angle closure glaucoma, in the setting of post-trabeculectomy, phacotrabeculectomy vs trabeculectomy and the role of cataract extraction as an appropriate independent IOP lowering procedure. ¹²⁴⁵
17. GL^{HM} LO17 Cycloablation (including cyclodiode laser) for refractory glaucoma. ¹²³⁴⁵
18. GL^{HM} LO18 Diagnosis and Management of acute and chronic angle closure glaucoma, including medical and laser treatment and surgical treatment. ¹²⁴⁵ (Linked to GL^B L14)
19. GL^{HM} LO19 A clinical assessment to diagnose and medically manage malignant glaucoma⁴⁵

20. GL^{HM} LO20 A clinical assessment to prevent, diagnose and medically manage rubeotic glaucoma. ¹²⁴⁵ Linked to GL^B LO14)
21. GL^{HM} LO21 A clinical assessment to diagnose and medically manage secondary glaucomas such as herpes simplex trabeculitis, Fuch's Heterochromic cyclitis, secondary pigment dispersion (sulcus IOL), traumatic glaucoma. ¹²⁴⁵ Linked to GL^B LO14)
22. GL^{HM} LO22 The indications for the use of MIGs, drainage tubes/stents and non-penetrating glaucoma surgery in complex glaucoma surgery.
23. GL^{HM} LO23 The etiology of other secondary glaucomas including phacolytic, erythroclastic, and silicone-oil glaucomas, Posner Schlossman syndrome, anterior segment dysgenesis, ICE and malignant glaucoma.
24. GL^{HM} LO24 An effective communication to patients and relatives to explain the implications of a diagnosis of glaucoma in relation to prognosis, chronicity of disease and compliance with treatment. Implications of minimum Driving Criteria in relation to VA and VFs. ¹²⁴⁵ Linked to GL^B LO11) ⁴⁵
25. GL^{HM} LO25 The design of referral, entry & exit care pathways, and treatment protocols for OHT and stable glaucoma to include glaucoma shared-care schemes, glaucoma referral refinement and the principles of working in a multi-discipline team (MDT). ¹²⁴⁵
26. Essential Reading:^{1,2,4,5}
 - European Glaucoma Society Guidelines 2021
 - Ocular Hypertension Study (OHTS) I & II
 - The Collaborative Initial Treatment Glaucoma Treatment Study (CIGTS)
 - Advanced Glaucoma Intervention Study (AGIS)
 - Collaborative Normal Tension Glaucoma Study (CNTG)
 - Early Manifest Glaucoma Trial (EMGT)
 - New York Glaucoma Study (NYGS)
 - Laser in Glaucoma and Ocular Hypertension Trial (LIGHT)
 - Effectiveness of early lens extraction for the treatment of primary angle-closure glaucoma (EAGLE)
 - The ZAP Trial
 - The Singapore ANA-LIS Trial

Higher Glaucoma Index Clinical Skills (ICS)

Clinical Skills

The trainee will perform to exit descriptor level 4

- GL^{HM} ICS 1 Glaucoma evaluation including multiple IOP measurement methods (Goldmann, Tonopen, Perkins as well as Ocular Response Analyzer (ORA), calibration of GAT, pachymetry to measure central corneal thickness, ocular response analyzer, assessment of irido-corneal angle structures by gonioscopy including indentation gonioscopy, using a variety of lenses. ²
- GL^{HM} ICS 2 Clinical evaluation of the optic nerve head. ^{2,4,5}
- GL^{HM} ICS 3 Interpretation of visual field testing to include progression analysis of white-on-white standard automated perimetry (SAP). ^{2,4,5}

Imaging Skills

The trainee will perform to exit descriptor level 4

- GL^{HM} ICS 4 OCT optic nerve head imaging and retinal nerve fiber layer analysis. ^{2,4,5}

- GL^{HM} ICS 5 Virtual clinical assessment with ONH and VF analysis. ^{2,4,5}

Procedural Skills

The trainee will perform to exit descriptor level 4

- GL^{HM} ICS 6 Argon or selective laser trabeculoplasty ALT / SLT. ^{2,3}
- GL^{HM} ICS 7 YAG laser peripheral iridotomy. ^{2,3}

3. Paediatric Ophthalmology and Strabismus for Higher Training in Medical Ophthalmology

Key Clinical Competencies and Learning Outcomes:

The trainee will know or perform to exit descriptor level 4

1. Paed^{HM} LO 1 Normal visual development in children, including visual milestones, cortical visual impairment and delayed visual maturation including amblyopia. (Link to Paed^{BM} LO 1,2,3,16) ^{1,2,4,5,6,8}
2. Paed^{HM} LO 2 Cycloplegic refraction and appropriate spectacle correction in children of various ages and strabismic conditions. (Link to Paed^{BM} LO 1,2,3) ^{1,2,4,5,6,8}
3. Paed^{HM} LO 3 Ocular motility evaluation incl CT, ACT, APCT, SPCT and the 3-step test. The assessment of binocularity including fusion and stereoacuity, Worth 4 dot, Baglioni lenses and the post operative diplopia test (PODT). (Link to Paed^{BM} LO 1,2,3) ^{1,2,4,5,6,7,8}
4. Paed^{HM} LO 4 Diagnosis, classification, and management of amblyopia including trial-based evidence to support therapeutic decisions. (Link to Paed^{BM} LO 1,2,3,4) ^{1,2,4,5,6,8}
5. Paed^{HM} LO 5 Classification & management of Esotropia including dysinnervation disorders (Duane's etc). (Link to Paed^{BM} LO 1,2,3,4) ^{1,4,5,8}
6. Paed^{HM} LO 6 Classification & management of Exotropia. (Link to Paed^{BM} LO 1,2,3,4) ^{1,4,5,8}
7. Paed^{HM} LO 7 Strabismus surgery, basic principles for concomitant and incomitant strabismus, pattern strabismus and transposition procedures. (Link to Paed^{BM} LO 1,2,3,4) ^{1,4,5,8}
8. Paed^{HM} LO 8 Strabismus surgery (2) Informed consent for strabismus surgery including post-operative adjustment and post-operative strabismus complications. (Link to Paed^{BM} LO 1,2,3,4) ^{1,4,5,8}
9. Paed^{HM} LO 9 Global trends in Myopia, anti-myopia therapy and its evidence-based management (ATOM 1 & 2 etc (Link to Paed^{BM} LO 1,2,3)). ^{1,2,4,5,8}
10. Paed^{HM} LO 10 The assessment, diagnosis, investigation and management of cortical visual impairment (CVI) in children with MDT intervention, including neurological, educational and social supports.
11. Paed^{HM} LO 11 Cranial neuropathies in children, diagnosis, investigations, and their management.
12. Paed^{HM} LO 12 The assessment, investigation & management (including relevant protocols) of disc swelling in children (including presentation of raised intracranial pressure in children).(Link to Paed^{BM} LO 8).
13. Paed^{HM} LO 13 Paediatric Horner's syndrome, differential diagnosis, investigation, and management.
14. Paed^{HM} LO 14 Clinical evaluation, investigation, and management of neuro-ophthalmology Eye movement disorders (CN palsies, Dorsal midbrain Syndrome, nystagmus, Spasmus Nutans, Opsoclonus, Ocular Motor apraxia, INO in children. (Link to Paed^{BM} LO 8).

15. Paed^{HM} LO 15 Childhood optic nerve disorders / anomalies (congenital and acquired) including ONH anomalies and colobomata, post-chiasmal disease affecting vision, structural abnormalities of the brain, acquired brain disease affect the visual system (CVI).
16. Paed^{HM} LO 16 The clinical evaluation, differential diagnosis and management of tearing, epiphora & nasolacrimal duct obstruction including education of AHPs (nurses etc in delivering care of same) in an infant/child, dacryocystocoele formation and acute dacrycystitis. ^{1,2,3,4,5,6} (Link to Paed^{BM} LO 15)
17. Paed^{HM} LO 17 The clinical evaluation and evidence-based management of infective (including ophthalmia neonatorum) conjunctivitis in an infant/child. (Link to Paed^{BM} LO 13) ^{1,2,4,5,6,8}
18. Paed^{HM} LO 18 The clinical evaluation and evidence-based management of atopic eye disease including escalated management of atopic kerato-conjunctivitis in an infant/child. (Link to Paed^{BM} LO 13) ^{1,2,4,5,6,8}
19. Paed^{HM} LO 19 The clinical evaluation & evidence-based management of unilateral /bilateral congenital cataract including timing of intervention, selection of procedure, post-operative optical management of aphakia with optical / contact lens rehabilitation & follow-up. ^{1,2,4,5,6}(Link to Paed^{BM} LO 5)
20. Paed^{HM} LO 20 The assessment & management of preseptal and orbital cellulitis in children, assessment including appropriate imaging, management, timing of surgical intervention & liaison with ENT / neurosurgical opinion.
21. Paed^{HM} LO 21 Assessment and medical management of abnormalities of the bony orbit (astigmatism, strabismus, optic nerve abnormalities) including craniofacial abnormalities / syndromes (Crouzons etc) and abnormalities of ocular development including cryptophthalmia, anophthalmia, microphthalmia. (Link Paed^{BM} LO 12) ^{1,2,4,5,6,8}
22. Paed^{HM} LO 22 The assessment, diagnosis, management and follow-up of congenital glaucoma & secondary glaucoma following cataract surgery. ^{4,5} (Link to Paed^{BM} LO 6).
23. Paed^{HM} LO 23 Differential of a cloudy cornea in children, classification of various anterior segment dysgenesis, aniridia, Peters anomaly, Axenfeld Rieger trabeculodysgenesis and relevant genetic testing.
24. Paed^{HM} LO 24 ROP screening criteria, examination, classification and staging, indications for therapy, and evidence-based protocolled management for most appropriate intervention and follow-up of ROP. (Link Paed^{BM} LO 18).
25. Paed^{HM} LO 25 The clinical evaluation, assessment & management of inherited retinal disease (including ocular albinism and relevant blood tests) RP, LCA, achromatopsia, CSNB, Stargardts, rod / cone dystrophies) and the appropriate use & interpretation of electro-diagnostic studies and appropriate guidance on access to education and social services and supports. ^{4,5} (Link to Paed^{BM} LO 7).
26. Paed^{HM} LO 26 Paediatric uveitis, JIA screening protocols and the use of immunosuppressants and biologics. ^{4,5,8}(Link to Paed^{BM} LO 9)
27. Paed^{HM} LO 27 Paediatric sickle cell retinopathy and screening protocols. ^{4,5,8}
28. Paed^{HM} LO 28 The clinical evaluation and clinical and medico-legal management of possible Abusive Head Trauma (AHT/NAI) and acute Child Protection Services and liaison with the appropriate authorities. ^{4,5} (Link to Paed^{BM} LO 14)
29. Paed^{HM} LO 29 The assessment and management of ptosis specific to the paediatric population, including Horner's, blepharophimosis and capillary haemangiomas, and

periocular vascular lesions and relevant treatment of same with avoidance of deprivation amblyopia.

30. Paed^{HM} LO 30 The clinical evaluation & differential diagnosis leucocoria & evidence-based screening and management of retinoblastoma and orbital tumours (rhabdomyosarcoma). (Link to Paed^{BM} LO 10)
31. Paed^{HM} LO 31 The clinical evaluation & differential diagnosis of phakomatoses (TS, NF, Sturge-Weber) and metabolic (mucopolysaccharidoses, neurometabolic, cystinosis, Wilsons) syndromes as well as genetic evaluation for same.
32. Paed^{HM} LO 32 Clinical approach and communication with visually impaired infants / children and their parents. Access to supports / health services and role of the ECLO in the clinic. (Link to Paed^{BM} LO 16)⁹
33. Paed^{HM} LO 33 Clinical approach and communication with visually impaired infants / and deaf children and their parents. Access to supports / health services and role of the ECLO in the clinic. (Link to Paed^{BM} LO 16)⁹

Essential Reading

- A. Amblyopia Treatment Studies 1-18 Pediatric Eye Disease Investigator Group.
- B. ATOM 1& 2. Atropine for the treatment of Myopia Studies.
- C. ACR Juvenile Idiopathic Arthritis associated-uveitis Guidelines for screening.
- D. BEAT-ROP Study. *Mintz-Hittner HA, Kennedy KA, Chuang AZ, BEAT-ROP Cooperative Group. N Engl J Med. 2011 Feb 17; 364(7):603-15.*

Higher Paediatric Ophthalmology Index Skills

Clinical Skills

The trainee will perform to exit descriptor level 4

- PaedHM ICS 1 Determination of visual function of infants and children - Logmar & Snellen acuity, Kay pictures, fixation preference testing, preferential looking, crowding, single & linear optotypes, HOTV, OKN, VOR suppression test.²
- PaedHM ICS 2 Complete visual function and ophthalmic examination of an infant²
- PaedHM ICS 3 A complete paediatric ocular motility and strabismic diagnostic examination to include cover testing, prism cover testing, esotropic and exotropic misalignment, A & V patterns, over- and under- actions of oblique muscle, AC/A ratio measurement, negative and positive fusion, measurement of stereopsis including the assessment of fusion and stereoacuity, Worth 4 dot, Baglioni lenses and the post operative diplopia test (PODT).²
- PaedHM ICS 4 An effective communication, with healthy, ill or un-cooperative children and their parents, to optimize the yield of the clinical examination.^{2,9}
- PaedHM ICS 5 A professional clinical assessment, sensitively adapted to the paediatric setting, with communication of diagnosis and prognosis to the parents, taking into account their anxieties, communication ability and social and mental status.^{1,5,9}
- PaedHM ICS 6 An informed consent process with explanation of risks and benefits of treatment or surgery in a manner respectful and sensitive to both the child's and the parents' needs as well as their social and mental status.^{1,5,9}

Procedural Skills

The trainee will perform to exit descriptor level 4

- Paed^{HM} ICS 7 Cycloplegic refraction and spectacle prescription to include bifocals for the treatment of refractive error, anisometropia, amblyopia and the post-cataract optical management of infants & children including those with complex co-morbidities such as special needs, CVI, deafness etc.
- Paed^{HM} ICS 8 Intravitreal injection for ROP. ^{2,3}

E. Delivery of the Higher Curriculum

Delivery of the curriculum – The Educational Framework: The Teaching and Learning Programme describes how the content of the curriculum is communicated and delivered by the ICO to the individual training units to the trainees, including the methods by which trainees are supervised.

The Teaching and Learning Programme is the structured education component of the Curriculum and is delivered by approved Consultant Trainers in National Training Units and the Irish College of Ophthalmologists. Full participation in this programme is mandatory for all trainees. The structured education component goes hand in hand with work-place training, enhancing the knowledge and skills acquired through clinical training posts.

I. Knowledge

The higher knowledge section of the Curriculum is delivered through a structured blended teaching and learning education programme with local, national and e-learning components.

Clinical Supervision

Clinical knowledge and experience gained from direct patient care on the ward, out-patient department and/or theatre and supervised by Consultant Trainer/s in National Training Units, accredited by the ICO.

In-house teaching

A minimum of two hours per week of in-house teaching per week (during the academic year) takes place in each training unit. The content should be broadly based on the syllabus and should include case presentations, journal club, didactic lectures and audit. Each Consultant Trainer in the unit is expected to participate in the teaching and such participation by Trainers as well as attendance by trainees should be documented by the Unit's Educational Supervisor.

The National Postgraduate Teaching Programme

The NPGTP includes monthly case presentations and lectures given by national and international invited speakers, with each subspecialty being represented at least once in the academic year. The programme is run by the Royal Victoria Eye and Ear Hospital from September to June of each academic year. The programme is live streamed.

Irish College of Ophthalmologists Courses / Study Days

The ICO delivers a number of academic courses throughout the year. Trainees must attend the strabismus course and present at it. During HMT4 / 5, trainees are required to attend the Strabismus Course again. Each trainee must have attended all obligatory courses to be awarded CCST.

Compulsory Courses for Higher Training in Medical Ophthalmology HMT4 – HMT5
Strabismus Course – University Hospital Waterford

National eTutorial Series for Ophthalmology

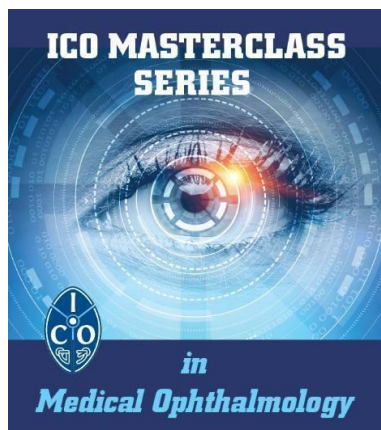
The ICO National eTutorial Series was launched in January 2021 as part of the online learning programme. The College hosts weekly subspecialty teaching sessions that are aligned to the learning outcomes of the curriculum. Trainees are strongly encouraged to attend and engage in these sessions.



The sessions run for 10 months, September to June, of the training year. The sessions include a 30 minute presentation followed by a short 10 minute Q&A session. The presentations are recorded and are

available for trainees to access via the ICO trainee portal.

ICO National Masterclass Series in Medical Ophthalmology



The ICO launched the National Masterclass series in the spring of 2022.

The purpose of the Masterclass Series is to promote a particular specialty across the breadth of Medical & Surgical Ophthalmology and in particular to highlight areas of recent innovation.

The Masterclasses Series welcomes speakers from internationally renowned centres to present on medically relevant topics. Recordings of the guest speaker presentations are available on the ICO trainee portal.

II. Technical, Clinical and Procedural Skills

The skills section of the curriculum is delivered through a structured blended teaching and learning education programme as well as didactic teaching methods.

Clinical Supervision

Clinical skills and experience gained from direct patient care on the ward, out-patient department and/or theatre and supervised by Consultant Trainer/s in National Training Units, accredited by the ICO.

F. Assessment and Feedback

1. Overview of the Assessment System

Assessment is the systematic procedure for measuring a trainee's progress or level of achievement, against *defined criteria* to make a judgement about a trainee. The assessment system refers to an *integrated set* of assessments which is in place for the entire of the specialist training programme and which is blueprinted against and supports the approved Medical Ophthalmology Curriculum. Such a system supports a variety of purposes including informing learning and instruction, determining progress, measuring achievement, providing accountability and informing the efficacy of the curriculum itself as to the achievement of specified milestones.

The purpose of the assessment system is to

- Define the performance standard.
- Address the breadth and depth of agreed performance standards across the different domains of the curriculum, not just those that are easy to measure.
- Employ a broad variety of assessment tools or instruments at local, national and international level and incorporate formative as well as summative measures.
- Determine whether trainees have acquired the common and specialty-based knowledge, clinical judgment, procedural and technical skills, and professional behaviour and leadership skills required to practice at the level of an independent medical ophthalmologist at specialist registration level.
- Provide systematic and comprehensive feedback as part of the learning cycle.
- Address all the eight domains of Good Professional Practice and conform to the principles laid down by the Medical Council.
- Determine whether trainees are meeting the standards of competence and performance specified at various stages in the curriculum so as to quality assure the curriculum itself.

2. Defining the Performance Standard*

Defining the performance standard is key to the assessment process. The quality of the assessment is dependent on the quality of the performance standard. Performance standards form the basis for the identification and provision of relevant teaching and training opportunities that are needed to support trainees at each particular stage of development. They also inform competence-based assessment to provide evidence of, not only what trainees know, but what they can do.

Standards for Training*

Standards for depth of knowledge

**Modified from the Intercollegiate Surgical Curriculum Programme UK 2015*

The performance standard for knowledge is based on a 4 stage competence level. Each topic within a stage has a competence level ascribed to it, ranging from 1 to 4, which indicates the depth of knowledge required.

1. Knows of
2. Knows basic concepts
3. Knows generally
4. Knows specifically and broadly

In the higher years of training (HMT 4 & HMT5), the appropriate depth and level of knowledge required is level 4.

- At level 4 trainees will read beyond the basic recommended texts as outlined in Section D2, page 29 of the basic curriculum above, and encompass original literature and peer review articles in relevant scientific and clinical literature.
- Level 4 goes beyond the level of understanding and recall to extend into critical analysis and the application of evidence-based knowledge to real-life clinical scenarios.
- Level 4 is the level at which one would expect a newly qualified medical ophthalmologist to function with regard to evidence-based knowledge and understanding of common clinical situations in the specialty but also in regard to the evaluation and critical analysis of difficult and complex cases and for this to be done to a satisfactory level without the requirement for external input.

Therefore the specialist training in medical ophthalmology training programme requires a more professional approach from trainees who are expected to have a deeper understanding of the subjects. There will be many opportunities within the programme for these trainees to acquire additional knowledge and skills above and beyond the content outlined in the curriculum. Self-directed learning is an important part of professional training and forms a vital part of life-long learning and modern ophthalmic practice.

Standards for Training

Standards for technical and procedural skills*

**Intercollegiate Surgical Curriculum Programme UK 2015*

The performance standard for technical and procedural skills has a 4 stage competence level defined by a descriptor ranging from 1 to 4. During the higher years of specialist training (HMT 4 & HMT5), the required performance standard for technical and procedural skills is level 4.

1. Has observed:
Descriptor: at this level the trainee:
 - Has adequate knowledge of the steps through direct observation.
 - Demonstrates that he/she can handle steps relevant to the procedure appropriately and safely.
 - Can perform some parts of the procedure with reasonable fluency.

2. Can do with assistance:

Descriptor: at this level the trainee:

- Knows all the steps – and the reasons that lie behind the methodology.
- Can carry out a straightforward procedure fluently from start to finish.
- Knows and demonstrates when to call for assistance / advice from the supervisor (knows personal limitations).

3. Can do whole but may need assistance:

Descriptor: at this level the trainee:

- Can adapt to well-known variations in the procedure encountered, without direct input from the trainer.
- Recognises and makes a correct assessment of common problems that are encountered.
- Is able to deal with most of the common problems.
- Knows and demonstrates when he/she needs help.
- Requires advice rather than help that requires the trainer to assist.

4. Competent to do without assistance, including complications:

Exit descriptor: at this level the trainee:

- With regard to the common clinical situations in the specialty, can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input.
- Is at the level at which one would expect a newly qualified medical ophthalmologist to function.
- Is capable of supervising trainees.

3. The Assessment Framework

A. The Consultant Trainer's Report

At the end of each 6 month rotation each Consultant Trainer documents a summative report on the trainee's performance. It should be based on the initial personal development plan, include reference to completed WBAs and provide feedback on the trainee's professional and interpersonal skills. It is an important component of the CAPA process.

B. Workplace Based Assessments in Higher Medical Training

The number and intensity of WBAs in HMT4 & HMT5 reflects the greater trainee requirement in the final stage of training to ensure deeper and broader acquirement of learning outcomes / competencies and to ensure that no gaps in achievement are present. WBAs are designed to be mainly trainee driven but are guided by the trainer and include a variety of assessment types so as to choose the most suited to the individual trainee's development.

Types of Workplace- based Assessment used

- CBD
- Mini-CEX

- DOPS
- Multi Source Feedback (Peer Assessment Tool)

WBAs per rotation - The number of types and intensity of each type of WBA in any 6 month rotation is determined by the curriculum. A minimum number of four WBAs per 6-month clinical placement is indicated in HMT4 – HMT5 training. The content is based on key fundamental knowledge and skills for ophthalmic practice appropriate to each specialty module. A detailed content-specific descriptor is embedded in each WBA to highlight the standard required. Each candidate is required to submit a total of 19 Workplace Based Assessments forms over the course of Higher Medical Training (HMT4-HMT5).

HMT Years 4-5 Workplace Based Assessment

Medical Retina: Mini CEX ARMD
Mini CEX ARMD Complex
Assessment Imaging & EP
Evidence Based Discussion ARMD Wet
Evidence Based Discussion ARMD Dry AREDS
Evidence Based Discussion Central & Branch Retinal Vein Occlusion
Evidence Based Discussion Diabetic Retinopathy DME
Evidence Based Discussion Diabetic Retinopathy BDR NPDR PDR

Glaucoma: DOPs SLT Laser
DOPs Gonio
Evidence Based Discussion OHT
Case Based Discussion POAG PACG Secondary Glaucoma

Paediatric Ophthalmology: Mini CEX Paediatric Uveitis
Mini CEX Paediatric Keratoconjunctivitis
DOPS Paediatric Refractive ESO
DOPS Paediatric Refractive EXO
DOPS Paediatric Refractive Complex Special Needs
DOPS Paediatric Refractive Infant Exam Normal
DOPS Paediatric Refractive Infant Exam Abnormal

It is a trainee's responsibility to ensure that all WBA forms are submitted to the ICO by the deadline in each semester.

C. School for Surgeons and Interactive Classrooms

Assessment of knowledge & understanding as well as analysis and application of knowledge across key topics of the basic curriculum by case-based discussions, critical review of the literature, MCQs etc. The topics are arranged to involve both basic fundamental aspects of knowledge as well as higher level learning including relevant randomized control trials, literature searches and reviews as well as and evidence based approaches to clinical

management. The 8 subspecialty categories of the curriculum - Oculoplastic, adnexal and lacrimal, Cornea & External Disease, Cataract & Refraction, Glaucoma, Vitreoretinal Disorders including Medical Retina, Neuro-ophthalmology, Paediatric Ophthalmology & Strabismus, Accident and Emergency Ophthalmology.

Trainees are obliged to submit 60% of all assignments. Four assignments are scheduled and graded per semester. An e-Interactive Classroom using the flipped classroom model is scheduled after each assignment is completed in order to deliver feedback and augment deeper learning including critical appraisal of the literature.

D. Examinations

The European Board of Ophthalmology Diploma

The EBOD is a summative assessment. It is held once a year in May, in Paris, France by the European Board of Ophthalmology. There is a written MCQ section followed by a viva which covers each subspecialty area in Ophthalmology. Trainees will typically take the EBOD examination during HMT4 or HMT 5.

The EBOD examination is a mandatory requirement for award of the CCST. Information on the EBOD examination is available at <http://ebo-online.org/newsite/ebodexam/diploma/asp>

E. Clinical Cases logbook for HMT

Detailed documentation of presentation, diagnosis and management as well as a literature review of best practice as applied to clinical cases (a minimum of 10 in HMT) from the different ophthalmic subspecialties including emergency and neuro-ophthalmology cases.

It is essential that during HMT each trainee collects **10 cases** across the breadth of ophthalmic practice. For Higher Medical Training the cases selected must be atypical, complicated or complex. Complicated implies that a complication occurred and the logbook should concentrate on the specifics of how the complication occurred, how it was managed, the outcomes and the literature regarding same. Complex implies a case that was difficult to diagnose or manage because of other co-existing ocular or medical morbidities and was of a serious nature. There is a specific emphasis on acute or emergency room presentations as well as neuro-ophthalmology which can be a life threatening as well as a sight threatening presentation. One of each category must be one must be an acute or emergency presentation. Each case must be described with reference to presentation, differential diagnosis, investigations, initial treatment, further investigation, evidence based use for treatment with reference to relevant RCTs or case series (if rare, presentation) and final outcome. The forms for the Clinical Cases Logbook are available on the SFS website.

2 managed case of complicated / complex glaucoma

2 managed case of complicated / complex medical retina

2 managed case of complicated / complex paediatrics (one must be acute presentation) e.g. acquired (neuro) strabismus in childhood: IV or VI CR N/JCA etc.

2 managed cases of acute neuro-ophthalmology: e.g. GCA or Horner's Syndrome

2 managed cases of complicated / complex ant segment

F. eLogbook.

The logbook is the trainee's record of all procedures performed on patients. Trainees record their level of involvement in a procedure and the supervision received using the descriptors. A minimum number of index procedures / lasers / refractions must be carried out during basic and specialty training.

G. Sub-specialty Structured Oral Examinations HMT4 & HMT5

The SOE take place at the end of each subspecialty module in Medical Retina, Glaucoma and Paediatric Ophthalmology. The purpose of the assessment is to ensure the required standard for independent practice consistent with the standard outlined in the Curriculum is achieved. The standard embodies the principles of evidence based practice, ability to manage straightforward as well as complicated and complex scenarios, avoiding harm, maximizing visual ability and recognizing the need for prompt and urgent referral. The performance standard is embedded by detailed descriptors across understanding and recall as well as the higher cognitive domains of application, analysis, judgement and synthesis. The assessment panel will consist of five assessors. The Dean will act as chair.

The duration of the Structured Oral Examination is 90 minutes. It is a 6-station assessment consisting of three long stations (3 x 20 minutes) and three short stations (3 x 10 minutes).

The long stations are dedicated to broad topics in each subspecialty and for example in the area of medical retina, would include age-related macular degeneration, diabetic retinopathy or retino-vascular disease. Both a broad and deep understanding of the content is required.

The long stations SOE 1, 2 & 3 will encompass:

- Case studies in each subspecialty to include complex & complicated case scenarios and relevant evidence-based management
- Interpretation of imaging, tests of ophthalmic, visual or retinal function and other relevant investigations or measurements
- Critical appraisal of the relevant literature and its application to practice.

The short stations are dedicated to less common disorders including relevant disorders that present acutely in the eye casualty.

The short stations SOE 4, 5 & 6 will encompass:

- Case studies to include acute and chronic disorders
- Interpretation of imaging, tests of ophthalmic, visual or retinal function and other relevant investigations or measurements
- First and second-order management

The candidate must pass all three long stations. Should a candidate not pass one long station, a re-sit assessment may be considered by the assessment panel. The candidate may

compensate between the short stations if there is a borderline fail in one station. If there is an outright fail in one station compensation is not allowed.

Should a trainee not reach the overall required standard in the SOE, further experiential training in the relevant subspecialty is required.

H. Audit.

Assessment of audit reviews a trainee's competence in completing the audit cycle. Trainees should complete one audit per year during HMT4 & HMT5. Audits should ideally be completed at both national and local level.

I. Competence and Assessment of Performance Appraisal

Purpose - The CAPA Process is an evaluation tool which is designed to assess the progress of trainees. The CAPA scrutinises each trainee's suitability to progress to the next stage of, or complete, the training programme. It bases its recommendations on the evidence that has been gathered in the trainee's learning portfolio during the period between CAPA reviews.

The CAPA is not in itself an assessment exercise of clinical or professional competence but records that the required curriculum competences and experience are being acquired, and that this is at an appropriate rate by providing a coherent record of a trainee's progress across multiple areas (clinical skills, assessments, presentations / publications and audit and examinations) by the end of their training.

The CAPA takes place on a 6 monthly basis for all trainees. The trainee's learning portfolio provides the evidence of progress. It is the trainee's responsibility to ensure that the documentary evidence is completed in adequate time for the CAPA. The Dean will monitor trainees' progress to ensure that a programme of remediation will, if necessary, be provided to assist individual trainees to successfully complete their training.

The CAPA Panel includes the Dean, assigned Educational Supervisors and Consultant Trainers.

Curricular Outcomes measured at the CAPA:

- HMT Assessment Form
- Workplace-based assessments
- CAPA A
- School for Surgeons
- Examinations
- Medical Cases Casebook
- eLogbook
- Sub-specialty Structured Oral Examinations
- Presentations and Publications
- Audit – National and Local
- Courses

CAPA Outcomes – Six outcomes are possible

1. Achieving progress and competences at the expected rate and should progress to the next grade.
2. Development of specific competences required – additional training time not required.
3. Inadequate progress by the trainee – additional training time required.
4. Inadequate participation in the compulsory components of the National Training Programme - additional training time required.
5. Released from training programme with or without specified competences.
6. Gained all required competences; will be recommended as having completed the training programme and for an award of a CCST.

G. Competency Points

Examinations during HMT4 & HMT5

The European Board of Ophthalmology Diploma

The European Board of Ophthalmology Diploma (EBOD) is a summative assessment. It is held twice annually; in Paris in the month of May and in Berlin in the month of October. There are two parts to the exam; a written MCQ section followed by a viva which covers each subspecialty area in ophthalmology. Success in the EBOD examination is a mandatory requirement for award of the CCST.

Subspecialty Structured Oral Examinations

Subspecialty Structured Oral Examinations (SOEs) are scheduled at the end of each HMT module and represent a critical competence point. Success at each subspecialty SOE, allows the trainee to progress to the next subspecialty training module. All three SOEs in Medical Retina, Paediatric Ophthalmology and Glaucoma must be passed in order to successfully complete HMT. If a trainee is not successful in a subspecialty SOE, a further 6 months of training in that subspecialty may be required.

Appraisals during HMT4 & HMT5

Competence, Assessment & Performance Appraisal (CAPA)

The CAPA is an evaluation tool which is designed to assess the progress of trainees. The CAPA scrutinises each trainee's suitability to progress to the next stage of, or complete, HMT by providing a coherent record of a trainee's progress across multiple areas (clinical skills, procedural skills, workplace-based assessments, presentations / publications and audit & examinations).

The CAPA takes place on a 6 monthly basis for all trainees. Trainee submitted assessment forms provide the evidence of progress. It is the trainee's responsibility to ensure that the documentary evidence is completed in adequate time for the CAPA.

H. Progression through Higher Medical Training

Progression through HMT

Trainees must achieve, in each approved HMT rotation, the medical, clinical, personal and professional competences defined for each subspecialty rotation and each stage of training in order to be allowed to progress to the next stage of HMT training.

Evidence of attainment of the curricular aims, in placements recognized and inspected by the Training Standards & Regulations Committee of the Irish College of Ophthalmologists is evaluated through the annual appraisal assessment process undertaken by the Irish College of Ophthalmologists. This forms the basis of the CAPA process. In order to inform these assessments, trainees are required to submit a form containing the following information:

Curricular Outcomes measured at the CAPA:

1. HMT Subspecialty Assessment Form
2. HMT Summary Logbook (CAPA A Form)
3. Work-place Based Assessments
4. Clinical Casebook
5. School for Surgeons
6. Examinations
7. eLogbook
8. Presentations and Publications
9. Audit
10. Courses

Remediation during HMT4 & HMT5

A programme of remediation will be offered during HMT.

The Dean of Postgraduate Education will monitor trainees' progress and provide remediation where necessary in order to support individual trainees to successfully complete their training.

Leave during HMT4 & HMT5

Any period of unplanned leave, beyond the normal entitlement to study and annual leave, may interrupt the acquirement of skills during each 6 month rotation. Therefore, a period of unplanned leave in excess of 2 weeks per 6 months, may require a further period of training to be undertaken.

Completion of Training in Higher Medical Ophthalmology Programme

Training in HMT will usually be completed in two years of full-time training. It is recognized that some trainees may require additional time to successfully complete the programme.

It is essential that trainees achieve both the basic and specialty-specific competences defined in the curriculum to be eligible to exit the programme. The EBOD and passing of the subspecialty SOEs are formal exit requirements for CCST. Award of the CCST will enable the trainee to be registered on the specialist register at the Medical Council in the division of ophthalmology. This will indicate that the trainee has reached the curricular standards of competence to practice independently as a Medical Ophthalmologist in Ireland.

Successful completion of HMT results in award of the CCST.

I. Award of Certificate of Completion of Specialist Training

On successful completion of HMT5, trainees are awarded CCST. The CCST will be awarded on successful achievement of:

1. Satisfactory HMT4 & HMT5 CAPA appraisals x 4 (including international presentation, publication, WBAs, SFS, HFs, Clinical Cases Casebook*, audit, courses).
2. Achievement of the European Board of Ophthalmology Diploma.
3. Success in each subspecialty SOE in Medical Retina, Glaucoma & Paediatric Ophthalmology.
4. Validated procedural logbook with the required minimum number of index procedures*
5. Completion of the Human Factors in Patient Safety programme.
6. Completion of the Research Methodology course.

*Minimum number of index procedures:

1. Laser

- | | |
|--------------------------------|----|
| ● YAG laser Capsulotomy | 50 |
| ● YAG laser iridotomy | 15 |
| ● Laser to retinal tear | 15 |
| ● Pan-retinal photocoagulation | 50 |
| ● Macular Laser | 20 |
| ● Glaucoma Laser (SLT) | 20 |

2. Lids / Lacrimal

- | | |
|-------------------------------------|----|
| ● Minor Surgery | |
| Incision and curettage of Meibomian | 30 |
| Excision of cyst and papilloma | 20 |
| Electrolysis and trichiasis | 10 |
| ● Lacrimal | |
| S + P lacrimal ducts | 20 |
| Punctal plugs | 20 |

3. Retinal

• Intravitreal Injections	300
• Subconjunctival / Subtenons / orbital floor	5
4. <u>Refraction</u>	
Refraction cases	100

Glossary of Abbreviations

A/E= Accident and Emergency
 AAO= American Academy of Ophthalmology
 ACG= Angle Closure Glaucoma
 AGIS= Advanced Glaucoma Intervention Study
 ARMD= Age-Related Macular Degeneration
 ARVO= Association of Research and Vision in Ophthalmology
 BMT= Basic Medical Training
 BRVO= Branch Retinal Vein Occlusion
 CAPA= Competence, Assessment & Performance Appraisal
 CBD= Case Based Discussion
 CCBMT= Certificate of Completion of Basic Medical Training
 CCST= Certificate of Completion of Specialist Training
 CITGS= Collaborative Initial Treatment Of Glaucoma Study
 CNTGS= Collaborative Normal Tension Glaucoma Study Group
 CRVO= Central Retinal Vein Occlusion
 CSR= Central Serous Retinopathy
 DME= Diabetic Maculopathy
 DOPS= Direct Observational Procedural Skills
 DR= Diabetic Retinopathy
 EAGLE= Effectiveness in Angle-Closure Glaucoma of Lens Extraction
 EBOD= European Board of Ophthalmologists Diploma
 EMGT= Early Manifest Glaucoma Trial
 EOM= Ocular Motility
 EURETINA= European Society of Retina Specialists
 FAF= Fundus Autofluorescence Imaging
 FFA= Fundus Fluorescein Angiography
 FRCOphth= Fellowship of the Royal College of Ophthalmologists
 HF= Human Factors
 HMT= Higher Medical Training
 I+C= Incision & Curettage
 ICG= Indocyanine Green Angiography
 ICO= Irish College of Ophthalmologists
 IVTx= Intra-vitreous injection
 JCA= Juvenile Chronic Arthritis
 JCST= Joint Committee on Surgical Training
 MDT= Multi-Disciplinary Team
 Mini-CEX= Clinical Evaluation Exercise
 MK= Microbial Keratitis
 MMI= Multiple Mini Interview
 MRCSI= Membership of the Royal College of Surgeons in Ireland
 NPGTP= National Postgraduate Teaching Programme
 NTG= Normal Tension Glaucoma
 NYGS= New York Glaucoma Study
 OCT= Optical Coherence Tomography



OCTA= Optical Coherence Tomography Angiography
OHTS= Ocular Hypertension
OSCE= Objective Structured Clinical Examination
PAC= Primary Angle-Closure
PDT= Photodynamic Therapy
PI= Laser Peripheral Iridotomy
POAG= Primary Open Angle Glaucoma
PRP= Pan-Retinal Photocoagulation
PVD= Posterior Vitreous Detachment
PXF= Pseudo-Exfoliative Glaucoma
RAC= Rapid Access Clinic
RCOphth= Royal College of Ophthalmologists
RCSI= Royal College of Surgeons in Ireland
RCTs= Randomised Controlled Trials
ROP= Retinopathy of Prematurity
RSTA= Research, Study, Teaching and Audit session
RVEEH= Royal Victoria Eye & Ear Hospital
S+P= Syringe & Probe
SFS= School for Surgeons
SITA= Swedish Interactive Threshold Algorithm
SLT= Selective Laser Trabeculoplasty
SOE= Structured Oral Examination
SSAOP= Supervised Structured Assessment of Operative Performance
VF= Visual Field
WBA= Workplace Based Assessment