



Irish College of
Ophthalmologists
Eye Doctors of Ireland
Protecting your Vision

CURRICULUM

Specialist Training in MEDICAL Ophthalmology

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Introduction

This Curriculum document describes the structure, aims and objectives of Specialist Training in Medical Ophthalmology. Successful progress through the programme and completion of training leads to Specialist Registration with the Irish Medical Council as an Ophthalmologist.

The first part of this document explains the structure of the Training Programme, the entry and exit criteria, the stages of training and the format of clinical rotations across clinical sites.

The second part details the core and specialist syllabi and Human Factors Programme which lay down the standards of speciality based knowledge, clinical judgement, technical and procedural skills as well as professional skills and behaviour, which must be attained at each stage of training. The core syllabus highlights the standards and content of the first three years. The specialty-specific syllabus details the specific requirements to graduate as a medical ophthalmologist at specialist registration level. The Human Factors Programme lists the generic skills (communication, leadership etc) that are common to all specialties.

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

The ICO is responsible for the delivery of the National Medical Ophthalmology Training Programme. The responsibility for designing the curriculum and setting the curriculum standards rests with the Manpower and Education Committee of the ICO. Selection criteria have been developed by the ICO for entry onto the National Medical Ophthalmology Training Programme and are available on the ICO website. Those who are selected onto the Training Programme must acquire recognised competences in terms of index procedures, workplace based assessments (WBAs) and satisfactory 6-monthly CAPA appraisals as well as succeed in the MRCSI and EBOD examinations, in order to successfully exit the Programme and obtain their Certificate of Completion of Specialist Training (CCST) in Medical Ophthalmology.

Educational Principles of the Curriculum

The purpose of the curriculum is to provide an excellent standard of ophthalmic practice, delivered in a safe and professional manner, by medical ophthalmologists trained to the highest of international standards.

The curriculum is founded on the following principles:

- The curriculum is a hybrid model of competency based or learning outcome-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 that are specified within the curriculum. These outcomes are competence-based rather than time-based.
- The curriculum is blueprinted 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 (MT1) through to year 3 (MT3) followed by competitive entry into specialist training in medical ophthalmology (MT4 & 5).
- The curriculum enables trainees to develop as generalists within ophthalmology, to be able to deliver an emergency service and to deliver more specialised services to a defined level.
- The assessment process is underpinned by explicit performance standards to ensure that the levels of competence outlined in the curriculum are attained.
- The accreditation process is transparent and outcomes-based.
- National Training Units are the main setting for teaching, learning and assessment.
- 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

1. STRUCTURE OF THE TRAINING PROGRAMME

Curricular design, competence and progression through the Training Pathway

The curriculum follows a hybrid competency-based model. It focuses on the trainee's ability to demonstrate the knowledge, skills and professional behaviours that they have acquired in their training (specified in the syllabus) through observable behaviours. Since it is a hybrid model it is not rigorously time defined and accordingly it allows these competences to be acquired in different time frames according to 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 allow 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 preference and ability. Furthermore, such competence points allow assessors to determine that trainees are adequately achieving competence along their training path and therefore quality assure the training Programme itself.

Competency points

- Entry into Core Training in Medical Ophthalmology.
- Six-monthly CAPA appraisals during MT 1, 2 and 3.
- End of Core Years MT 1, 2 and 3.
- Entry into Specialist Training in Medical Ophthalmology.
- Exit with Certification of Completion of Specialist Training (CCST) in Medical Ophthalmology.

A critical competence point is at the end of MT3 at which point, in practice, the trainee will compete to pursue higher training in medical ophthalmology to specialist registration level with exit of the Programme and attainment of the Certificate of Completion of Specialist Training (CCST) in Medical Ophthalmology.

Core Training in Medical Ophthalmology

The aim of the first three years of Core 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 in any specialist discipline. The first three years of training are defined as MT1, MT2 and MT3. Competences that are common to all ophthalmic specialties are defined as core competences. Training in the first three years centres on the acquirement of these core competences. These competences are detailed in the Core Syllabus (see Appendix A).

Entry into Core Training in Medical Ophthalmology

Entry to the Medical Ophthalmology Programme will be by competitive interview held centrally at the Irish College of Ophthalmologists. Selection criteria is on the ICO website.

Clinical Rotations and Training Units

Seven training units are nationally recognised by the ICO for training. They are:

1. Royal Victoria Eye & Ear Hospital, Dublin
2. Sligo University Hospital
3. Mater Misericordiae University Hospital, Dublin
4. University College Hospital, Galway
5. University Hospital Waterford
6. Cork University Hospital
7. University Hospital Limerick

Specific allocations are determined for each trainee by the ICO. It is recommended that trainees spend three 6-month rotations in one training unit and a further three 6-month rotations in another department during the initial 3 years of their training.

Leave during training rotations

Any significant period of leave, beyond the normal entitlement to study and annual leave, will interrupt the acquirement of skills during each 6 month rotation. Therefore a period of leave of greater than 2 weeks per 6 months of training (in addition to the full entitlement of study and annual leave) may require a further period of 6 months training to be performed.

Exams during Core Training

Four attempts are allowed for FRCOphth Part 1 and four attempts are allowed for MRCSI Part II. Part I FRCOphth must be passed by the end of MT2.

Remediation during Core Training

A maximum of one year of remediation will be offered during the basic Medical Ophthalmology Programme.

Completion of Core Training

The basic Medical Ophthalmology Programme is a 3 year programme. It should be completed within 5 years of the start date. Should the completion date change to 5 years beyond the start date, then the trainee will be required to undertake the Programme from the beginning.

Criteria for award of Certificate of Completion of Core Training in Medical Ophthalmology (CCCT).

These are available on the ICO website. See Appendix G.

The minimum standards for each training unit are as follows

Each unit must

- Appoint an Educational Supervisor.
- Assign a designated Consultant Trainer to each Trainee, one who meets with the Trainee at the beginning of each 6-month rotation and proposes a learning agreement stating achievable clinical or procedural goals during these six months of training.
- Ensure that the Unit's standards of training are in keeping with the Quality Indicators for Core Training in Ophthalmology MT1-3 (see Appendix J).
- Ensure the weekly timetable is in keeping with the recommended ICO guidelines for Core Training: One RSTA session, a maximum of two casualty sessions, one laser or injection session, four clinical sessions with a good general case mix and a case load of 10 patients per trainee per session. First on-call activities in keeping with European Working Time Directive (EWTD), with access to a second-on-call senior colleague. (see sample timetable below).
- Deliver 2 hours per week of in-house teaching, including a monthly journal club, in keeping with the syllabus content. Trainees are obliged to attend 60% of teaching.
- Organise workplace training in terms of appropriate 1:1 supervision and guidance as well as appropriate case mix and case load.
- Provide and identify relevant teaching and learning and relevant clinical and procedural opportunities to support trainees development (particularly in relation to readiness for summative assessment), at each particular stage of progress.
- Inform workplace based assessments (WBAs) or competence-based assessment to provide evidence of what trainees know and can do. This must be carried out in keeping with the core competencies outlined in the curriculum (4 WBAs to be carried out during every 6 month rotation).
- Remediation. Due to variables such as structure of an individual training unit programme, rotation sub-specialty and/or ability of the trainee, remediable and identifiable gaps in a trainee's core competences may arise. The unit must ensure that these are dealt with expeditiously during the subsequent six months of training through local learning agreements with the educational supervisor, the Consultant Trainer and the trainee. The results of this process must be specifically addressed in their subsequent CAPA report.
- Provide a dedicated teaching area with library facilities, internet access, photocopying facilities, audio-visual aids, digital projection and video-conferencing facilities.

Sample timetable for Core Years MT1, MT2 and MT3

Monday	Tuesday	Wednesday	Thursday	Friday
<i>In-house teaching</i>		<i>In-house Journal Club</i>		
<i>AM</i>				
Injections	Clinic	Clinic	Minor ops / Laser	Clinic
<i>PM</i>				
Casualty	Imaging /	Casualty	Clinic	RSTA
	<i>Virtual Clinic</i>		<i>NPGT**</i>	

** NPGT is the monthly National Postgraduate Teaching session that is video-conferenced to all Units nationally.

Specialist Training in Medical Ophthalmology

The *purpose* of Specialist Training in Medical Ophthalmology is to provide in-depth specialist training so as to equip trainees with skills so that they can independently practice as generalists within ophthalmology, deliver an emergency service and also deliver more specialised services to a defined level. The Programme has a modular approach and is framed around the three subspecialties located at the core of future independent practice - medical retina, glaucoma and paediatric ophthalmology. Trainees, irrespective of preference and future career choice, need to complete all three modules to successfully complete their training. To reflect the diversity of the future career path of a medical ophthalmologist the Training Programme is located both within hospital-based training units as well as in community clinics.

The MT4 and MT5 modular curriculum has been designed to define the final stage in the development of competent medical ophthalmic practice, with each stage underpinned by explicit outcome standards. Trainees will focus on higher order outcomes or meta-competences that are relevant to each of the three main subspecialties so as to allow some degree of specialisation in his or her subsequent career. These are defined as **specialty-specific competences**. They are clearly outlined in the Specialty-Specific Syllabus (Appendix B). The requirement to attain specialty-specific competences is accompanied by the need for greater workplace-based assessment of depth of knowledge, skills and judgement. This will take place in the form of monthly workplace-based assessments, with CBDs, mini-CEXs and DOPs scheduled into each 6 month timetable (4 WBAs will be summative). This provides a means of documenting advancement through the various stages of training in the domains of specialty-knowledge, clinical and technical skills as well as professional behaviour, leadership and judgement. The timetables for teaching, learning and assessment (see Appendix C,D,E) underpinning the delivery of the MT4 and MT5 curriculum reflect the more intensive modular approach with an extension in case mix and caseload, 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.

Entry into Specialty Training in Medical Ophthalmology

Those who have successfully completed Core Training can proceed to compete to enter the fourth year of training provided they meet the selection criteria outlined below. Applicants are also required to understand and provide evidence of their suitability to become a medical ophthalmologist at specialist registration level. Entry to the MT4 programme is by competitive interview held centrally at the ICO. Please see the ICO website for the relevant Scorecard link for Progression from Core to Specialist Training in Medical Ophthalmology.

<http://www.eyedoctors.ie/trainees/Core-Training-in-Medical-Ophthalmology.asp>

Selection Criteria for entry into MT4 Training in Medical Ophthalmology (Appendix H)

1. Successful completion of Core Training.
2. Satisfactory CAPA appraisals for each 6 months of the first 3 years.
3. Satisfactory achievement of all summative WBAs at each competency point.
4. Successful completion of the MRCSI Examination.
5. Successful completion of the Human Factors Examination.
6. Documented attendance at obligatory ICO courses.
7. A validated logbook to include:
 - 150 intravitreal injections
 - 20 panretinal lasers and 5 macular lasers.
 - 10 YAG capsulotomy lasers, 5 YAG laser PIs
 - 20 minor procedures (S+P, I+C, lesion excision and biopsy etc)
 - 5 ectropion
 - Refraction x 30 cases
8. Clinical cases logbook for entry into MT4 to include:

1 managed case of glaucoma:	POAG, NTG or OHT
1 managed case of uveitis:	Anterior or posterior
1 managed case of ARMD :	Wet or dry ARMD
1 managed cases of CRVO:	Ischaemic or non- ischaemic
1 managed cases of childhood strabismus:	Esotropia or exotropia
3 managed cases of acquired strabismus:	IV x 1, VI x 1, III CR N palsy x 1

2 managed cases of neuro-ophthalmology:	CSF/GCA/ Horner's
2 managed cases of anterior segment:	Herpetic and microbial keratitis

9. Audit.

In summary, trainees who have completed the above minimum numbers of procedures and clinical cases, have been successful in the MRCSI and Human Factors exam and have validated CAPA appraisals for a minimum of 3 years, may apply for entry into the MT4.

Training Units for Speciality Training

The following joint training units (combining a central and satellite unit) have been approved for ophthalmic training.

Medical Retina

1. Sligo University Hospital / Letterkenny Community Clinic
 2. University Hospital Waterford / Community Clinic
 3. Galway University Hospital
- Additional Units to be confirmed

Paediatric

1. Children's University Hospital, Temple Street and North Dublin Community Clinic
 2. University Hospital Waterford / Community Clinic
- Additional Units to be confirmed

Glaucoma

1. Royal Victoria Eye & Ear Hospital, Dublin
2. Mater Misericordiae University Hospital, Dublin

The minimum standards for each satellite or community training unit are defined*:

Each unit must

1. Appoint an Educational Supervisor to liaise with the central training unit.
2. Assign a designated ophthalmologist to each trainee, one who meets with the trainee at the beginning of each 6-month rotation and proposes a learning agreement stating achievable clinical or procedural goals for that six months of training.
3. Ensure the satellite / community aspect of the weekly timetable is in keeping with the recommended guidelines for each module.
4. Deliver 1 hour per week of in-house teaching in keeping with the syllabus content. Trainees are obliged to attend 80% of teaching sessions.
5. Deliver a monthly one-hour session on practice management.
6. Organise workplace training in terms of appropriate 1:1 supervision and guidance as well as appropriate case mix and case load.
7. Provide and identify relevant teaching and learning opportunities to support trainees development at each particular stage preparing them for independent practice
8. Inform regular workplace based assessments (WBAs) or competence-based assessment to provide evidence of what trainees know and can do. This must be carried out in keeping with the specialty-specific competencies outlined in the curriculum (monthly WBAs to be carried out during every 6 month rotation).
9. Medical retina rotation satellite units must have FFA or / OCT facilities and ideally be IT networked with the central unit.
10. Glaucoma rotation satellite units must have VF either Humphrey SITA-standard or equivalent and some method of recording the optic disc – camera or imaging device ie OCT.
11. Paediatric rotations must have an Orthoptist on site.

*It is recommended that satellite units are inspected on a 3 yearly basis by the ICO.

Modules for Speciality 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 paediatrics are of 6 months durations. The medical retina module is of 12 months duration.

Generic Timetable: 4 subspecialty sessions, 2 general sessions (A/E, PAC), 2 GAP specific*, 1 RSTA, 1 session / week in outside unit.

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

MODULE 1: MEDICAL RETINA (APPENDIX C)

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 injections x 1, FFA /OCT session x 1 (incorp), A/E session x2, RSTAx 1, other* x 1.

Second-on-call activities excluding surgical trauma.

*Can be minor ops, PAC clinic, consultation clinic, specialty clinic in neuro-ophthalmology, general clinic in the community, virtual clinic etc. It cannot be another A/E session.

Core Activities

Review of major RCTs in ARMD, DR, DME, BRVO, CRVO, CSR.

Monthly teaching of RCTs.

Presentation at annual retinal meeting or SFSO.

Clinical Cases: Five index clinical cases from community/diagnosis/treatment /outcome.

Assessment of Specialty-specific competences

Monthly WBAs (4 must be summative):

CBDs / mini-CEX in ARMD, DR, DME, BRVO, CRVO, CSR.

DOPs: Index procedures: IVTx, subtenons, macular grid, PRP, indirect PRP, FFA / OCT analysis.

Audit (only one audit needs to be completed per year in MT4 and MT5).

MODULE 2: GLAUCOMA (APPENDIX D)

Timetable

Glaucoma specialty clinics x 2 with a good case mix and a case load of 10-12 patients per trainee per session, OHT clinic x 1, YAG Laser x 1, General clinic x 1, RSTA x1, A/E session x 2, other* x 2. At least one session per week should be in a community-based practice. Second-on-call activities excluding surgical trauma.

*Can be minor ops, PAC clinic, consultation clinic, specialty clinic in neuro-ophthalmology, general clinic, paediatric clinic. Cannot be another A/E session.

Core Activities

Review of major RCTs: OHTS, CITGS, EMGT, CNTGS, AGIS, NYGS, EAGLE Study.

Monthly teaching of RCTs.

Presentation at annual college meeting or SFSO.

Clinical Cases: Five index clinical cases from community/diagnosis/treatment /outcome.

Assessment of Specialty-specific competences

Monthly WBAs (4 must be summative):

CBDs and mini-CEXs in POAG, PXF, NTG, ACG, CACG, OHT.

DOPs: Index procedures: Gonioscopy, YAG laser PI, ONH assessment, OCT analysis.

Audit.

MODULE 3: PAEDIATRIC OPHTHALMOLOGY (APPENDIX E)

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, orthoptist/refractive session x 1, A/E session x 2, RSTA x 1, other* x 1.

At least one session per week should be in a community-based practice. 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.

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.

Host SFSO once per 6 month rotation.

Clinical Cases: Five index clinical cases from community/diagnosis/treatment /outcome.

Practice Management module.

Assessment of Specialty-specific competences

Monthly WBAs (4 must be summative):

CBDs / mini-CEX in Amblyopia, congenital infantile cataract, esotropia, exotropias, epiphora, orbital cellulitis.

DOPs: Index procedures: Childhood Refraction, childhood examination, infant indirect ophthalmoscopy.

Audit.

See Appendix E.

Practice Management Module:

This one day module will be organised in conjunction with the RCSI, the RCPI or the GP Training body – business case design, leading a MDT (managing / teaching a team, clinical governance).

Human Factors:

Human Factors is obligatory and is co-ordinated with year ST3 and ST4 of the higher programmes under the RCSI.

Certificate of Completion of Specialist Training in Medical Ophthalmology

Certificate of Completion of Specialist Training in Medical Ophthalmology (CCST)

It is essential that trainees achieve both the core and specialty-specific competences defined in the curriculum to be eligible to exit the programme. The European Board of Ophthalmology Diploma (EBOD) is the formal exit requirement for CCST. Award of the CCST will allow the trainee to be registered on the specialist division of ophthalmology at the Medical Council. This will indicate that the trainee has reached the curricular standards of competence to practice independently as a Medical Ophthalmologist in Ireland. Award of Certificate of Completion of Specialist Training in Medical Ophthalmology.

Award of Certificate of Completion of Specialist Training in Medical Ophthalmology

On completion of Specialist Training in Medical Ophthalmology, trainees may apply for the Certificate of Completion of Specialist Training. The Certificate will be awarded on successful achievement of

1. The required minimum number of procedures.
2. Achievement of the European Board of Ophthalmology Diploma (EBOD).
3. Satisfactory CAPA appraisal for each six months of Specialist Training in Medical Ophthalmology (CAPA X 4).
4. Passing of each viva voce assessment by sup-specialty Panel in Medical Retina, Glaucoma & Paediatrics
5. Successful passing of the HFs modules for MT4 & MT5
6. Audit x 2.
7. Practice Management Module.

Total number of procedures needed (core + specialist training) for trainees to apply for CCST (Appendix I)

1. Laser

YAG laser Capsulotomy	50	(10 + 40)
YAG laser iridotomy	15	(5 + 10)
Laser to retinal tear	15	(5 + 10)
Pan-retinal photocoagulation	50	(20 + 30)
Macular Laser	20	(5 + 15)

2. Lids / Lacrimal

(a) Minor Surgery	Ectropion/Entropion	10
	Incision and curettage of Meibomian	20
	Excision of cyst and papilloma	20
	Electrolysis and trichiasis	10
(b) Lacrimal	S + P lacrimal ducts	20
	Punctal plugs	20
(c) Trauma	Lid and facial lacerations	5

3. Retinal

Intravitreal Injections	300
Subtenons injection LA	10
Subtenons injection (steroid)	5

4. Clinical Cases Logbook

Glaucoma	5
Medical Retina	5
Paediatrics	5

5. Refraction Logbook:

Adults	60	(30 + 30)
Paediatric	30	

6. Audit:

MT4 & MT5 Audit

Career Options after Specialist Registration in Ophthalmology

Medical ophthalmologists have varying roles in health care in Ireland. Once the programme is successfully completed, specialists work in the HSE in community and in hospitals and/or in private practice.

Continued Professional Development

Once training is completed, all doctors are required to maintain their professional development in line with the Medical Council requirements for Professional Competence

2. Components of the Curriculum

The curriculum has been designed around three broad areas - The Syllabi, The Delivery of the Curriculum and Assessment and Feedback.

The Syllabi

There are three syllabi that constitute the main content of the Medical Ophthalmology Curriculum. Each syllabus details the learning content and outcomes to be achieved at each stage of training.

The Core Syllabus MT1 – MT3: Appendix A

The Core 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. See Appendix A.

The Specialty – Specific Syllabus MT4 – MT5: Appendix B

The Specialty – Specific Syllabus centers on a higher degree of specialisation in the areas of medical retina, glaucoma and paediatric ophthalmology. See Appendix B.

The Human Factors Syllabus:

The Human Factors is a programme of personal skills for clinical and surgical training which has been developed by The Royal College of Surgeons in Ireland. It aims to give trainees the personal skills and attitudes necessary for modern clinical practice as well as successful working in a multidisciplinary team.

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

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

The Educational Framework: The Teaching and Learning Education Programme has three components.

1. Core Knowledge

The core 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 (NPTG):

The National Ophthalmic Postgraduate Teaching Programme 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 March of each academic year, and subsequently by the Eye Department in the Mater University Hospital from March through to June of each academic year. The Programme is video-conferenced to training Units in Cork University Hospital, Limerick Regional Hospital, Waterford Regional Hospital, Galway University Hospital, Sligo General Hospital and Letterkenny Hospital. It is obligatory for trainees to attend a minimum of 60% of the National Ophthalmic Postgraduate Teaching Programme.

Irish College of Ophthalmologists Course Study Days: (Appendix F)

Throughout the Academic year the below courses are delivered by the ICO. Each trainee must attend at least one course per year during their training and must have attended all obligatory courses in order to obtain their CCST. During MT4 and MT5, trainees are expected to re-attend the retinal and strabismus course and present on at least one of these occasions.

SCHOOL for Ophthalmology (SFO):

SCHOOL for Ophthalmology – SFO is the online component of the training programme. Each trainee is issued with a unique logon name and password to access the website. The site is found at www.schoolforsurgeons.ie.

The course content of SCHOOL 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 trainees and are based on the syllabus, the case-mix encountered in the clinic as well as the MRCSI (Ophth) Examination. 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 given on a regular three weekly basis and trainees are expected to submit their assignments online by the due date. Feedback is given in the form of text or interactive classrooms after the assignment due date. Each assignment is graded and trainees are expected to score a minimum of 60% in order to pass each 6 month rotation of their 5 year training cycle. During MT4 and MT5, trainees are expected to host one assignment and host one Interactive Classroom per 6 month rotation.

2. 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:

Based at one central unit at the Royal Victoria Eye and Ear Hospital, Dublin and one peripheral unit at Cork University Hospital, Cork, wet-lab facilities allow trainees to expand their hands-on technical experience and further progress their development. A one day wet-lab microsurgical skills course is obligatory for all MT1 trainees in the first month of their training.

Refraction Simulator Tutorials:

The College employs a refraction simulator 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.

Irish College of Ophthalmologists Skills Courses (Appendix F)

Throughout the academic year the below courses are delivered by the ICO. Each trainee must attend at least one course per year during their training and must have attended all obligatory courses in order to obtain their Certificate of Completion of Training in Medical Ophthalmology. During MT4 / 5, trainees are recommended to re-attend the Refraction course, Retinal Course and Strabismus Course. See Appendix F for relevant courses.

3. Human Factors Course:

Medical Ophthalmologists need to be able to perform in differing conditions and circumstances, respond to the unpredictable and make decisions under pressure, frequently in the absence of all the desirable data. They use professional judgement, insight and leadership in everyday practice, working 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 syllabus is mapped to the good professional practice framework and the programme is delivered by the RCSI. The Programme covers a wide range of topics including 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.

Trainees do three modules each year. In Core Training, a Human Factors OSCE exam is taken in Year 1 and 2. Attendance at each module as well as passing of the OSCE exam is obligatory in order to complete MT3 and compete for MT4 in Medical Ophthalmology.

The training is delivered by a combination of didactic teaching and practical work which will involve role playing and small group discussions. Audio visual support is provided. Trainees are encouraged to find solutions to human factor problems for themselves and they are given assignments on which to work between modules. There is emphasis on practical application in the work place and the assignments reflect the importance of work place application.

Assessment and Feedback

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 core and 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 a 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.

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

The performance standard for knowledge is based on a four 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 core years of training, the appropriate depth and level of knowledge required can be found in exemplar texts tabulated below (level 3). The College expects trainees to gain knowledge from these texts in the context of ophthalmic practice defined in the core 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 and Examination Techniques. James C.B., Benjamin Larry. Elsevier 2006.
7. Surgical Techniques in Ophthalmology Series: Cataract Surgery. Text with DVD. Benjamin Larry. Elsevier 2007.

The Specialist Training in Medical Ophthalmology 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. It is expected that trainees will read beyond the texts above, and original literature and peer review articles in relevant scientific and clinical literature. 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 technical and procedural skills*

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

Exit 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

Exit 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).

*Adapted from the Intercollegiate Surgical Curriculum Programme UK 2015

3. Can do whole but may need assistance

Exit 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.

The Assessment Framework

The individual components of the assessment system are:

1: The Consultant Trainer's Report

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

2: Workplace-based Assessments

Workplace-based assessments encompass the assessment of skills, knowledge, behaviour and attitudes during day-to-day ophthalmic practice. Workplace based assessment 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.

Minimum number 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 clinical placement is indicated in MT1 – MT3 training. The number and intensity of WBAs in MT4 & MT5 is increased and reflects the greater trainee need in the final stage of training and to ensure that no gaps in achievement are present. WBAs are designed to be mainly trainee driven but are guided by the trainer.

Types of Workplace - based Assessment used

- CBD (Case-Based Discussion)
- Mini-CEX (Clinical Evaluation Exercise)
- DOPS (Direct Observation of Procedural Skills)
- SSAOP
- Multi Source Feedback (Peer Assessment Tool)

3. School for Surgeons

Assessment of knowledge and understanding across key topics of the core curriculum by case-based discussions, critical review of the literature, MCQs etc. Trainees are obliged to submit a post to 60% of all assignments.

4. Examinations

Examinations are held after MT2 of Core Training and in the final stages of MT5 training.

The Membership of the Royal College Surgeons in Ireland (MRCSI Ophth)

The MRCSI is a summative assessment. It assesses knowledge and skills that are encompassed within the core component of the MT1 – MT3 core years' syllabus to which the MRCSI syllabus is blueprinted. The purpose of the MRCSI examination is to determine that trainees have acquired the knowledge, skills and understanding required for the early years of ophthalmic training and to determine their progress to higher training in MT4.

*Intercollegiate Surgical Curriculum Programme UK 2015

The MRCSI assesses knowledge and applied knowledge in the generality of ophthalmic training. The examination consists of two parts, Part I and II. Part I is Applied Basic Sciences (MCQ only)*. Part II is Principles of Ophthalmology in general, with a Multiple Choice Questions paper (Single Best Answer and Extended Matching Items), followed by, if successful, the clinical component of the examination. The latter consists of a series of carefully designed and structured interviews on clinical topics, some being scenario-based and some being patient-based. Trainees will typically take the Part I examination during MT1 or during MT2. Part II can then be taken after the candidate has completed two years of clinical ophthalmology i.e. in MT3. The MRCSI examination is a formal exit requirement from MT3 Training. It is also a mandatory requirement for entry into MT4 training.

* The MRCSI Part I has been replaced by FRCOphth UK Part I as of July 2015.

Information on the MRCSI examination is available at <http://www.rcsi.ie/ophmembersexams>

Please note:

4 attempts are allowed for FRCOphth Part 1 and 4 attempts are allowed for MRCSI Part II.
Part I FRCOphth must be passed by the end of Yr 2 or MT2.

The European Board of Ophthalmology Diploma (EBOD)

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 MT4 / 5. The EBOD examination is a mandatory requirement for award of the Certificate of Completion of Training in Medical Ophthalmology.

Information on the EBOD examination is available at
<http://ebo-online.org/newsite/ebodexam/diploma/asp>

Human Factors Programme OSCE

In Core Training, a Human Factors OSCE exam is taken in Year 1 and 2.

5. eLogbook.

The logbook is the surgical 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 must be carried out during each 6 months of basic and specialty training. Refractions should also be recorded.

6. Viva voce style assessments by Sub-specialty Panel MT4 & MT5

Sub-specialty specific viva voce style assessment by a panel of assessors takes place at the end of each module.

7. Audit.

Assessment of Audit reviews a trainee's competence in completing the audit cycle. Trainees should complete at least one audit during the MT1 – 3 and one audit per year during MT4 & MT5.

8. Competence and Assessment of Performance Appraisal (CAPA)

Purpose – The CAPA Process (Competence, Assessment and Performance Appraisal) 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 records that the required curriculum competences and experience are being acquired, and that this is at an appropriate rate. It also provides a coherent record of a trainee's progress. The CAPA is not in itself an assessment exercise of clinical or professional competence.

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 complete in good time for the CAPA. The Dean will monitor trainees' progress to ensure that any remedial action can be taken, if necessary, to enable individual trainees to successfully complete their training.

The CAPA Panel Postgraduate Dean / Vice Dean, Chair of the Manpower and Training Committee, Chair of the Medical Ophthalmologists Committee, Assigned Educational Supervisors.

Curricular Outcomes measured at the CAPA

WBAs.

School for Ophthalmology (SFO).

eLogbook.

Human Factors.

Attendance at Obligatory Courses.

Audit.

Examinations.

Viva voce style assessments by Sub-specialty Panel

Consultant Trainers Report including Learners Agreement.

CAPA Outcomes – Six outcomes are possible

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

4. QUALITY ASSURANCE OF THE TRAINING PROGRAMME

This aspect of the Curriculum looks at how the educational programme is organised and how the supervision of training is quality assured by defining governance structures as well as the roles and responsibilities of those involved in the implementation of the curriculum in regard to supervision of training, the training systems and the individual training units.

1. Training Governance Structure

The Medical Council (MC) has overall responsibility for the quality assurance of postgraduate medical education and training in Ireland. The Medical Council has approved the ICO as the postgraduate body to deliver the National Training in Medical Ophthalmology Programme and Curriculum. In that regard, the ICO is responsible for implementing processes to ensure the training meets national standards in accordance with the Medical Council postgraduate training guidelines.

2. Supervision of Training

The Irish College of Ophthalmologists is the body responsible for the delivery of postgraduate Ophthalmic Specialist Training in Ireland. The ICO co-ordinates the educational, organisational and quality management activities of the national ophthalmic training programmes. It ensures the implementation of the curriculum with its associated training requirements for educational supervision, by clearly defining roles and responsibilities.

Roles and Responsibilities

The Dean and the Chairman of the Manpower and Education Committee oversee the delivery of the Programme along with members of the Manpower and Education Committee. Educational Supervisors are nominated Consultant Trainers from each designated Training Unit and ensure that there is a direct line of accountability from College to Training Unit to Consultant Trainer to Trainee.

Dean

The Dean of the ICO is responsible for

- Organising, managing and directing the training programme, ensuring that the Medical Ophthalmology Training programme meets the curriculum requirements.
- Administering and chairing the 6-monthly CAPA process.
- Overseeing progress of individual trainees through the levels of the curriculum, ensuring that appropriate levels of supervision, training and support are in place in each Unit.
- Helping Educational Supervisors manage trainees in difficulty and implementing remediation as required.

Educational Supervisor

The role of the Educational Supervisor in each Training Unit is to

- Ensure that an induction to the unit (where appropriate) has been carried out.
- Ensure a Learning Agreement takes place between the Consultant Trainer.
- Inform the Dean any trainee in difficulty.
- Ensure WBAs are carried out according to the Curriculum.
- Ensure an end of placement Consultant Trainer's report is provided by each Consultant Trainer for the CAPA.
- Ensure in-house teaching takes place according to the ICO guidelines and that attendance at such teaching is documented.
- Ensure timetables are in accordance with the Curriculum.

Consultant Trainer

Consultant Trainers

- Have overall educational and supervisory responsibility for the trainee in a given rotation.
- Ensure that the trainee is familiar with the curriculum and assessment system relevant to the level/stage of training and undertakes it according to requirements.
- Ensure a Learning Agreement is put in place with the trainee with an interim review at the middle and end of the placement.

- Ensure appropriate training opportunities are in place to ensure the outcomes of the Learning Agreement are achievable.
- Ensure that the trainee has appropriate day-to-day supervision appropriate to their stage of training.
- Give detailed feedback on a trainee's performance.
- The Trainer is responsible for providing the Consultant Trainer Report. This provides written documentation of the trainee's progress and specific learning outcomes and is facilitated by reviewing the outcomes of the Learning Agreement.

Trainee

The ICO encourages learning which is trainee-led and trainer-guided. Trainees are expected to take a proactive approach to learning. The trainee is responsible for ensuring that

- A learning agreement is put in place.
- Opportunities to discuss progress are identified.
- Workplace-based assessments are undertaken.
- Evidence is documented and provided for the CAPA process in a timely manner.

The Manpower, Education and Research Committee (Training Committee)

The responsibility for designing the curriculum, setting the curricular standards and overseeing its implementation rests with the Manpower, Education and Research Committee. The Training Committee meets at least 4-5 times per year, is chaired by the Chairperson of Training and has in attendance the Dean, Educational Supervisors from each Training Unit and the President of the College.

3. Evaluation of the Training System and Training Programme

- Audit of achievement of Curricular Outcomes (WBAs).
- Audit of CAPAs.
- Audit of trainee performance at MRCSI / EBOD examinations.
- Audit of attrition rates.
- Audit of Trainee Surveys.

The existing BST Training Programme was inspected and approved by the European Board of Ophthalmologists in 2013. The EBO will be invited for a repeat inspection visit to include inspection of the Medical Ophthalmology Programme in 2017 /18.

4. Inspection of Training Posts

As part of its role in the quality management of ophthalmic specialist training, the ICO developed a quality assurance strategy for its inspection of training posts in 2013 based upon seven quality indicators. This was in turn based on the quality indicators developed by the JCST in the UK (Appendix J).

The ICO recommends that clinical placements need to be in Training Units that:

- Are able to provide sufficient clinical resource.
- Have sufficient trainer capacity.
- Have high quality clinical and procedural supervision.

Trainees must be placed in approved posts that meet the required training and educational standards. Individual hospitals and units must take responsibility for ensuring that clinical governance and health and safety standards are met.

Appendix A

The Core Syllabus

Overview

1. Oculoplastic, adnexal and lacrimal procedures
2. Cornea & External Diseases
3. Cataract & Refraction
4. Glaucoma
5. Vitreoretinal Disorders incl Medical Retina
6. Neuro-ophthalmology
7. Paediatric Ophthalmology & Strabismus
8. Accident and Emergency Ophthalmology

Overview

The Core Syllabus comprises the following components

Key topics: learning requirement for all core trainees. Key topics are delivered in a blended framework using a combination of methods – in-house teaching, interactive classroom, national postgraduate training programme, annual ICO meeting as well as dedicated ICO or recommended independent courses. Trainees, by completion of Core Training will be able to manage straightforward cases in these key areas. Key topics are assessed via multiple methods - WBAs with in-house mini-CEX, CBD via SFSFO and MRCSI Part II.*

Index procedures: refer to some of the more commonly performed clinical interventions and procedures across ophthalmology. They represent evidence of technical competence across the whole range of ophthalmic examinations and procedures in supervised settings, ensuring that the basic elements of ophthalmic practice are acquired and adequately assessed. Direct Observation of Procedural Skills, mini-CEX assessments, SSAOP including the OSCAR, eLogbook and audit assess trainees carrying out index procedures (whole procedures or specific sections) to evidence learning.*

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 – include mini-CEX, DOPS, SSAOP.
2. SFSFO – include CBDs, journal reviews and MCQs.
3. MRCSI Part I, Refraction Certificate, Part II written and clinical.
4. eLogbook.
5. Audit.

1. Oculoplastics

Key Topics: Essential Clinical Experience

To know to level 3

- The symptoms and signs of lid, naso-lacrimal and orbital disease.^{1,2,3}
- Assessment of abnormal lid position; including assessment of ectropion, entropion, ptosis, lid laxity, trichiasis, lagophthalmos and exposure.¹
- Assessment of abnormal lid swelling, including chalazion, stye, retention cysts, papilloma and basal cell carcinoma.¹
- Assessment and management of the watering eye, including the distinction between excessive lacrimation and epiphora, blepharitis, recognition and investigation of nasolacrimal obstruction.^{1,2}
- Assessment and management of ocular and lacrimal trauma, orbital and compression fractures and traumatic optic neuropathy.²
- Assessment and management of orbital swelling, inflammatory orbital disease, orbital masses distinguishing intraconal from extraconal space-occupying lesions, orbital cellulitis, recognition of compressive optic neuropathy.^{2,3}

- Assessment and management of orbital cellulitis, appropriate haematological and imaging investigations, selection of appropriate antibiotics, recognition of complications and appropriate liaison with ENT.^{1,2}
- 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}
- Appropriate selection and interpretation of orbital imaging including CT and MRI scans.^{1,2,3}
- Liaison with Neurosurgeons, ENT, Endocrinologists and prosthetic service.

To know to level 2

- Sebaceous carcinoma of lid and squamous cell carcinoma.
- Cicatricial malposition of the lids.
- Management of ptosis and blepharospasm.
- Canalicular repair.
- Dacryocystorhinostomy.
- Orbital and lacrimal tumours and their treatment.
- Inflammatory orbital and lacrimal diseases and their treatment.
- Paranasal sinus disease.
- Use of radiographs, MRI, CT scan.
- Enucleation, evisceration and fitting of prosthesis, exenteration.

Index Core Skills

To be competent to exit descriptor level 3 in

- Performing exophthalmometry.³
- Syringing and probing.^{1,4}
- Incision and curettage for chalazion.^{1,4}
- Wedge biopsy and/removal of papilloma, etc. ^{1,4}
- Electrolysis/cryotherapy for trichiasis.^{1,4}
- Surgery for involutional ectropion.^{1,4}
- 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}
- 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}

Assessment throughout Core Training

1. WBAs

MT1

- Incision and curettage of meibomian cyst (DOPs).

MT2

- Ectropion surgery - wedge or LCT (DOPs). Includes assessment of abnormal lid position; including assessment of ectropion, entropion, ptosis, lid laxity, trichiasis, lagophthalmos and exposure correction.
- Syringe and probe +/- punctal occlusion with assessment of epiphora, TFBUT, corneal staining, FDDT, lid / meibomian gland function assessment, NLDO functional and anatomical (DOPs).

MT3

- Orbital cellulitis (CBD).
- Ptosis (mini-CEX).

2. SFO: TED. Orbital cellulitis, lacrimal function, orbital trauma / fracture.

3. MRCSI: Part II. TED, ectropion, ptosis, MRI / CT scan interpretation.

4. eLogbook: Syringing and probing, incision and curettage for chalazion, wedge biopsy and/removal of papilloma, electrolysis/cryotherapy for trichiasis, surgery for involutional ectropion / entropion.

5. Human Factors OSCE.

6. Consultant Trainer Report.

2. Cornea and External Eye Disease

Key Topics: Essential Clinical Experience

To know to level 3

- The symptoms and signs of external eye disease and corneal disease.³
- How to take an accurate history and perform a competent anterior segment examination of the lids, conjunctiva (bulbar and tarsal), cornea, sclera and episclera.³
- The aetiology, pathophysiology, diagnosis and treatment of infectious external disease, including viral, bacterial and chlamydial conjunctivitis.³
- Assessment and management of blepharitis, meibomianitis, and its treatment.³
- Assessment and management of episcleritis.
- 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}
- Assessment and management of chemical injury of the conjunctiva and cornea.¹
- Assessment and management of allergic and atopic eye disease.³
- Assessment and 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, and knowledge of the complications and potential hazards of topical steroid use.^{1,2,3}
- Recognition of Acanthamoeba and fungal keratitis, implications of early diagnosis, and indications for corneal biopsy.²
- Assessment and management of corneal ulceration from viral and bacterial disease, marginal keratitis and neurotrophic disease.^{1,2,3}
- Assessment and management of Herpes Simplex keratitis, with evidence base from HEDS I and II.^{1,3,3}
- Therapeutic contact lenses and their complications.
- Causes of corneal oedema, endothelial cell count, corneal transplantation, DSEK, standards of care in donor eye procurement, signs of corneal graft rejection and other complications.³
- Corneal ectasia and indications for cross-linking.^{2,3}
- Corneal topography pachymetry, keratometry and Placido's disc.^{2,3}
- Understanding of the pharmacology and pharmacokinetics of topical medications.²

To know to level 2

- The common corneal dystrophies and interstitial keratitis.
- The basics of refractive surgery.
- Cicatricial conjunctival disease and limbal stem cell transplantation.
- Autoimmune corneal and scleral disease including peripheral ulcerative keratitis and use of immunosuppressive therapies.
- Management of pterygium, conjunctival and uveal tumours.

Index Core Skills

To be competent to exit descriptor level 3 in

- Slit-lamp biomicroscopy.¹
- Conjunctival sampling and corneal scraping for microbiological investigations.^{1,4}
- Corneal topography, pachymetry for corneal thickness, keratometry and Placido's disc.³
- Management of chemical injury of the cornea and conjunctiva.¹
- Cross-linking.⁴
- Punctal occlusion.^{1,4}
- 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}
- 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: RCTs

HEDS I and II.

Steroids for Corneal Ulcer Trial SCUT.

Assessment throughout Core Training

1. WBAs

MT1

- Management of microbial keratitis and corneal scraping for microbiological investigations (mini-CEX) / DOPs.

MT2

- Punctal Occlusion and assessment of 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 (DOPs).
- Management of chemical injury of the cornea and conjunctiva (mini-CEX).

MT3

- Management of Herpes Simplex Keratitis (mini-CEX).

2. SFO: Microbial keratitis, Herpes Simplex Keratitis (HSK), pharmacology of topical agents, antibiotics, preservatives (CBD).
3. MRCSI Part II. Corneal topography and keratometry, keratoconus, Placido's Disc, HSK, corneal graft/rejection. bacterial, viral and neurotrophic corneal disease, dry eye.
4. eLogbook: Corneal scraping, cross-linking, punctal occlusion.
5. Human Factors OSCE.
6. Consultant Trainer Report.

3. Disorders of Cataract & Refraction

Key Topics: Essential Clinical Experience

To know to level 3

- The symptoms and signs of cataract and refractive disease and how to perform a competent examination of both systems.^{1,3}
- Assessment and management of ametropia, including hypermetropia, myopia, astigmatism and their complications.^{1,3}
- Assessment and management of accommodation problems, including spasm and presbyopia.
- 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}
- 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}
- Pre-operative and post-operative assessment of phacoemulsification surgery.^{1,3}
- 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}
- Calculation of intraocular lens power according to the patient's refractive needs, knowledge of algorithms, including post-refractive surgery.^{1,2,3}
- Diagnosis and management of post-operative endophthalmitis, with knowledge of relevant causative bacteria and appropriate antibiotic treatment regimens.^{1,2,3}
- Liaison with contact lens service.

To know to level 2

- Basis of spectacle intolerance from poor dispensing or defective prescription.
- Use of logMAR charts in assessment of acuity.
- Combined cataract and glaucoma/corneal transplantation surgery.
- Ectopia lentis and Marfan's syndrome.
- Therapeutic contact lenses, refractive surgery, intraocular lens design and biomaterials.

Index Core Skills

To be competent to exit descriptor level 3 in

- Retinoscopy with trial lenses and subjective refraction.^{3,4}
- Correction of refractive error by spherical, cylindrical and multi-focal lenses, lens neutralisation and use of focimeter.³
- Biometry and keratometry for intraocular lens calculation, both IOL Master and immersion methods.^{1,2,3}
- Pre-operative assessment for cataract surgery with attention to ocular, systemic and medication related factors that influence the surgical outcome.^{1,2,3}
- YAG laser posterior capsulotomy.⁴
- 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}
- 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}

Courses:

Annual ICO Refraction Course

Recommended - International Refractive Meeting, Dublin

Assessment throughout Core Training

1. WBAs

MT1

- Cataract (mini-CEX): signs of cataract and refractive disease, assessment of ametropia, including hypermetropia, myopia, astigmatism and their complications, 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, pre-operative and post-operative assessment surgery, biometry and calculation of intraocular lens power according to the patient's refractive needs, knowledge of algorithms, role of immersion biometry and role of post-refractive surgery.

MT2

- Subtenons / peribulbar local anaesthetic (DOPs).

MT3

- Myopia (mini-CEX).

2. SFO: Biometry – algorithms, pre-operative and post-operative assessment of phacoemulsification surgery.

3. MRCSI: Refraction Certificate. Biometry – algorithms, pre-operative/post-operative assessment, PXF, risks and benefits of phacoemulsification surgery, post-operative endophthalmitis / antibiotic regimens.

4. eLogbook: YAG laser capsulotomy, Refractions x 30 (adult).

5. Human Factors.

6. Consultant Trainer Report.

4. Glaucoma

Key Topics: Essential Clinical Experience

To know to level 3

- 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}
- How to accurately and reliably perform optic nerve head assessment.^{1,2,3}
- To understand the aetiology, risk factors and pathophysiology of glaucoma.^{1,2,3}
- Assessment, diagnosis, management of open and closed angle forms of glaucoma.^{1,2,3}
- The pathophysiology and management of ocular hypertension as well as secondary glaucomas such as PDG, PXF, traumatic.^{1,2,3}
- How to communicate to patients and relatives the implications of a diagnosis of glaucoma in relation to prognosis, chronicity of disease and compliance with treatment.^{1,5}
- Understand the physiology of white-on-white perimetry and accurately interpret visual field analysis.^{1,2,3}
- Understand how to monitor visual fields for progression.^{1,2,3}
- To understand the importance of systemic vascular conditions, in particular vasospasm and low blood pressure, in glaucoma, especially Normal Tension glaucoma.
- To understand the pharmacology and pharmacokinetics of topical and systemic glaucoma medication.^{1,2,3}
- How to prescribe the appropriate pharmacological therapy and to advise patients of adverse reactions and side effects of therapy.^{1,2,3}
- How to monitor compliance.
- How to assess effectiveness of therapy.^{1,2,3}
- To accurately assess, diagnose and manage (medically) and treat (laser) acute angle closure glaucoma.^{1,2,3}
- How to assess when surgery, laser or other interventions are indicated.^{1,2,3}
- To diagnose rubeotic glaucoma.
- To understand glaucoma drainage surgery, indications, complications and their treatment.^{1,2,3}

Essential Reading:

European Glaucoma Society Guidelines 2010

To know to level 2

- Optic nerve imaging and retinal nerve fibre layer analysis – OCT, HRT, GDx.
- 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.
- Argon laser trabeculoplasty
- Prevention of glaucoma bleb failure e.g. using anti-metabolites
- Drainage tubes and stents / Cycloablation.

Index Core Skills

To be competent to exit descriptor 3 in

- Applanation tonometry (Goldmann).¹
- Calibration of Goldmann Applanation Tonometer.¹
- Measurement of Pachymetry to measure central corneal thickness.¹
- Assessment of irido-corneal angle structures by 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}
- 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}
- 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}

Assessment throughout Core Training

1. WBAs

MT1

- Gonioscopy & Calibration of Goldmann Applanation Tonometer (DOPs).

MT2

- Primary open angle glaucoma (mini-CEX): Optic disc assessment and evaluation (SFS). 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, accurately and reliably perform optic nerve head assessment, perform VF analysis with understanding of the physiology of white-on-white perimetry and monitor visual fields for progression, benefits and risk of medical and surgical treatment.

MT3

- Acute angle closure (mini-CEX).

2. SFO: OHTs Study. VF analysis. Optic disc assessment and evaluation. NTG study.

3. MRCSI Part II. . POAG, OHT, PXF, optic nerve head assessment, VF analysis

4. eLogbook: Peripheral iridotomy

5. Human Factors OSCE.

6. Consultant Trainer Report.

5 Vitreoretinal disorders & Medical Retina

Key Topics: Essential Clinical Experience

To know to level 3

- How to take a history relevant to posterior segment disease.¹
- Classical symptoms of posterior segment disease and relation to disease entity.^{1,3}
- Assessment of visual function- Snellen acuity, Amsler Grid testing, Pupil examination.¹
- The signs of retinal vasculature abnormalities in relation to systemic/ocular disease (Hypertension, Diabetes Mellitus, Retinal vascular occlusions, retinal arteriolar occlusions, drug toxicities, neovascularisation, intraretinal microvascular abnormalities (IRMAs), retinal vasculitis (arteritis or venulitis).^{1,2,3}
- Signs of vitreous abnormalities - vitreous detachment (PVD), syneresis and vitreous opacities (including asteroid and hemorrhage) and vitreous cells detection (inflammatory, neoplastic and pigment).^{1,2,3}
- The signs of macular abnormalities – abnormal foveal reflex, Watske- Allen sign, epiretinal membrane, retinal thickening, choroidal neovascular membrane and haemorrhage, drusen, RPE change, pigment epithelial detachment, central serous disease and macular hole.^{1,2,3}
- Signs of retinal abnormalities - retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative), inflammatory change (snowbanking).^{1,2,3}
- Signs of choroidal or scleral disease - choroidal melanoma, inflammatory choroidal disease (choroiditis, granuloma), posterior scleritis.^{1,2,3}
- Flashes and floaters, complications of posterior vitreous detachment and recognition of retinal tears.^{1,2,3}
- Vitreous haemorrhage, from retinal tears or neovascularization –initial management.¹
- Retinal detachment, classification, predisposition, recognition, surgical choice for re-attachment and urgency of treatment, recognition of proliferative vitreoretinopathy.
- Diabetic retinopathy, classification, screening strategies and management.^{1,2,3}
- Hypertensive and arteriosclerotic retinopathy, including macroaneurysms and branch retinal vein occlusion.³
- Retinal vascular occlusions, recognition of ischaemic and exudative responses, rubeosis.^{2,3}
- Macular diseases, including recognition of age-related maculopathy, subretinal neovascularization, cystoid macular oedema, macular hole, related symptomatology and urgency of treatment.^{1,2,3}
- Differential diagnosis and treatment of malignant melanoma.^{2,3}
- Anterior and posterior uveitis- classification, clinical signs and treatment.³
- Low Vision Aid services.
- Senile/acquired retinoschisis.¹

To know to level 2

- Vitreoretinal surgery, including closed intraocular microsurgery, scleral buckling and internal tamponade.
- Intraocular foreign body, complications and management.
- Indocyanine green angiography, electrodiagnostic tests and dark adaptation.
- Genetic retinal disease, retinal dystrophies, retinoblastoma.
- Toxic maculopathy.
- Intermediate and posterior uveitis, toxoplasmosis, toxocara and sympathetic ophthalmia, retinal vasculitis.
- Coats' disease, other telangiectasis.
- AIDS-related opportunistic infections and anti-AIDS treatment.

Essential Reading:

AREDS I and II

PIERS, MARINO

CATT, IVAN

CRVO Study, BRVO study, BRAVO, BRIGHT, CRYSTAL

Index core skills

To be competent to exit descriptor level³

- Perform a diagnostic examination of vitreous including vitreous detachment (PVD), syneresis and vitreous opacities (including asteroid and hemorrhage) and vitreous cells detection (inflammatory, neoplastic and pigment).^{1,3}
- Perform a diagnostic examination of macula (90 D, 78 D)- including foveal reflex assessment, Watske Allen test, epiretinal membrane, retinal thickening, choroidal neovascular membrane, drusen, RPE change, pigment epithelial detachment, central serous disease and macular hole.^{1,3}
- Perform a diagnostic examination of the peripheral retina - (90 D, 78 D, 20 D), indirect indented examination, retinal drawings, retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative), inflammatory change (snowbanking).^{1,3}
- Perform and interpret Optical Coherence Tomography with reference to vitreoretinal interface pathology, intraretinal pathology and subretinal pathology based on OCT appearance.^{1,2,3}
- Interpretation of Fundus Fluorescein angiography-indications, complications and interpretation.^{1,2,3}
- Perform and interpret B-scan ultrasonography-indications (vitreous hemorrhage, retinal detachment).
- Perform Laser via slit-lamp for retinal tear.⁴
- Perform scatter laser photocoagulation of the peripheral retina.^{1,4}
- Perform macular laser – focal/grid.^{1,4}
- Perform intravitreal injection technique-indications, complications.^{1,4}
- 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}
- 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}

Assessment throughout Core Training

1. WBAs

MT1

Posterior Vitreous Detachment (mini-CEX).

Retinal Skills: T-mirror examination, indirect ophthalmoscopy/indentation/retinal drawing (DOPs).

MT2

Pan-retinal laser photocoagulation (DOPs).

MT3

Wet ARMD (mini-CEX).

2. SFSO: CRVO, BRVO ARMD dry (AREDS) & wet. PVD. Trauma -commotio retinae.

3. MRCSI Part II. CRVO, BRVO, ARMD, DR, DME.

4. eLogbook: Laser to retinal tear, PRP, macular laser focal/grid, intra-vitreous injection.

5. Human Factors OSCE.

6. Consultant Trainer Report.

6. Neuro-Ophthalmology

Key Topics: Essential Clinical Experience

To know to level 3

- The symptoms and signs of visual pathway disorders.^{1,2,3}
- The aetiology of visual pathway disorders (ischaemic, inflammatory, infectious, compressive, toxic, neoplastic, autoimmune, congenital) and to identify the site and nature of the lesion/s from relevant history and examination.^{1,2,3}
- Appropriate investigations of 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}
- 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}
- To understand vascular disorders appropriate to neuro-ophthalmology including assessment, diagnosis and appropriate management of ischemic optic neuropathies, cerebro-vascular accidents / transient ischaemic attacks, vasculitis, giant cell arteritis and carotid artery dissection.^{1,2,3}
- To understand in-depth, the clinical entity of temporal arteritis, its myriad presentations, its sight threatening nature, the relevant haematological, radiological and histological investigations and the importance and side-effects of its treatment with steroids.^{1,3}
- To diagnose eye movement abnormalities including supra- and infra-nuclear lesions, internuclear ophthalmoplegia, nystagmus and ocular myopathies.³
- To know and understand disorders of neuro-immunology including multiple sclerosis (especially in relation to its ophthalmic manifestations) and myasthenia gravis.^{2,3}
- To know and understand the clinical entities across the spectrum of demyelination, have knowledge of the relevant RCTs and existing evidence base in relation to its ophthalmic diagnosis and treatment and to select appropriate imaging with reference to imaging protocols for diagnosis, staging and prognosis.^{2,3}
- To diagnose a swollen optic disc and evaluate for papilloedema (and assess for Benign Intracranial Hypertension), as well as differentiate from ischemic optic neuropathy (arteritic and non-arteritic), acute optic neuritis, toxic optic neuropathies and congenital optic disc anomalies.³
- To understand, appropriately order and accurately interpret tests of retinal and optic nerve function (VEP, ERG, PERG, EOG).
- To select appropriate investigations and understand 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}
- To understand and judge appropriately the relevance and clinical urgency of neuro-imaging, including CT and MRI of eye, orbit and brain, MRA and MRV, carotid Doppler ultrasound.
- To communicate effectively with patients, including those with impaired visual function.^{1,3}
- To understand and appreciate the importance of visual rehabilitation and the management of visual handicap.
- To liaise with neurologists, neurosurgeons, endocrinologists and vascular surgeons.
- Botulinum Toxin, its mechanism of action and its clinical applications.³
- Pharmacological Tests, Tensilon Test, Tests for Horner's Syndrome (Cocaine 4% & Adrenaline 0.1%) and for Adie's Pupil (Pilocarpine 0.1%).^{2,3}

Index core skills

To be competent to exit descriptor level 3

- To perform an accurate and reliable clinical neuro-ophthalmic examination including CRNs I to XII, VFs to confrontation / macular sparing and optic nerve assessment.^{1,3}
- Interpretation of Goldmann Visual fields and VEP.
- Selection of neuro-imaging, protocols and their interpretation including CT, MRI.
- Temporal artery biopsy.⁴
- Orthoptic examinations (including the cover test, the prism cover test, field of BSV and Hess charts).^{1,3}
- Interpretation of CT and MRI of eye, orbit and brain.^{1,2,3}
- Performance of a professional clinical assessment with sensitive communication of a diagnosis with a poor visual prognosis taking into account a patient's anxieties, communication ability and social and mental status.^{1,5}
- 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}

Assessment throughout Core Training

1. WBAs
 - MT1
N/A
 - MT2
Orthoptic examination including the cover test, the prism cover test, field of BSV and Hess charts. (DOPs)
 - MT3
Temporal Arteritis (mini-CEX)
Third Nerve Palsy (mini-CEX)
2. SFO. Optic Neuritis including RCTs and MRI interpretation. Carotid dissection. Horner's and pharmacological testing.
3. MRCSI Part II. Third, fourth, sixth nerve palsy. Horner's Syndrome. Visual Fields examination including macular sparing.
4. eLogbook – Neuro-ophthalmology cases.
5. Human Factors OSCE.
6. Consultant Trainer Report.

7. Paediatric Ophthalmology and Strabismus

Key Topics: Essential Clinical Experience

To know to level 3

- Concomitant strabismus, screening strategies, epicanthal anatomy, accommodative aspects, interpretations of orthoptic report, indications for surgery.³
- Amblyopia, anisometropic, stimulus-deprivation, strabismic prevention and treatment using occlusions, patching and atropine.³
- Incomitant strabismus, cranial nerve palsies including diabetic mononeuropathies, significance of painful third nerve palsy and of pupil sparing, prediction of post-operative diplopia.^{1,3}
- Ocular motility syndromes (Duane's, Brown's).^{1,3}
- Diagnosis management and treatment of paediatric lens abnormalities including congenital cataract, unilateral and bilateral, and prevention of amblyopia.³
- Diagnosis management and treatment of paediatric glaucoma, including congenital glaucoma.
- Diagnosis management and treatment paediatric retinal disease.
- Diagnosis management and treatment of paediatric neuro-ophthalmology and knowledge of paediatric neurological diseases affecting vision.
- Diagnosis management and treatment of paediatric uveitis and paediatric systemic disease with ocular involvement.
- Diagnosis management and treatment of paediatric ocular tumours including the differential diagnosis of leucocoria and differential diagnosis of retinoblastoma.
- Ocular albinism.
- Diagnosis and management of accidental and non-accidental eye injury.
- The approach to infants, children and their parents.
- Ophthalmia neonatorum, diagnosis and management.
- Congenital nasolacrimal obstruction: recognition and management.
- Ametropia in children, significance and treatment.^{1,3}
- Orbital cellulitis presenting in children.^{1,2,3}
- The apparently blind infant, normal and delayed visual maturation, learning disabilities and role of visual electro-physiology.
- Liaison with pediatricians, geneticists.

Essential Reading

Treatment of amblyopia in children age 7 to 17 years. Arch Ophthalmol 2005;123:437-47.
Paediatric Eye Disease Investigator Group. Anisometropic Amblyopia. Ophthalmol 2006.

To know to level 2

- Nystagmus, congenital and acquired.
- Ocular myopathies and the neuromuscular junction.
- Oblique muscle, vertical muscle and adjustable suture surgery.
- Retinopathy of prematurity, screening and treatment.
- Genetic and developmental disorders, Leber's amaurosis, X-linked schisis, Coats' disease.
- Paediatric neurological diseases.
- Presentation of raised intracranial pressure in infancy and childhood.
- Orbital tumours in children, including rhabdomyosarcoma.
- Services for the rehabilitation of the visually disabled child.

Index Core Skills

To be competent to exit descriptor 3 in

- Determining the visual acuity in infants and children including fixation, preferential looking, single and linear optotype tests.
- Performing fundoscopy in children.
- Performing cycloplegic refraction and prescribing for children including bifocals and Fresnel prisms.¹
- Performing cover test in infants / children (including alternate and prism) including identifying and characterizing esotropic and exotropic ocular motility conditions in children.¹
- Performing stereo tests in infants / children, to include the management of amblyopia and of disorders of binocular function.¹
- Evaluating and referring 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}
- Identifying and characterizing vertical strabismus, Duane's syndrome and Brown's syndrome.^{1,3}
- Performance of 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}
- Performance of 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}

Assessment throughout Core Training

1. WBA

MT1 N/A

MT2

Orthoptic examination in a child including the cover test, the prism cover test, field of BSV and Hess Chart. (DOPs).

Orbital Cellulitis in a child (mini-CEX –see Section1).

MT3

Concomitant Strabismus and cycloplegic refraction in a child (mini-CEX).

2. SFSO. Orbital cellulitis. Ocular Albinism. Exotropia / consecutive esotropia.

3. MRCSI Part II. Accommodative/partially accommodative esotropia, exotropia, Duane's and Brown's Syndrome.

4. eLogbook: Refractions.

5. Human Factors OSCE.

6. Consultant Trainer Report.

8. Accident and Emergency Ophthalmology

Key Topics: - Essential Clinical Experience

To know to level 3

- Superficial ocular trauma including assessment and treatment of foreign bodies, abrasions and minor lid lacerations.
- Moderate blunt ocular injury including initial assessment and management of hyphaema and commotio retinae, orbital fracture.²
- Severe orbital injury: initial assessment and management and initial care of corneal and scleral wounds, aqueous leakage and tissue prolapse, traumatic optic neuropathy.
- Retained intraocular foreign body; initial assessment and management, anticipation from history, confirmation of X-ray and CT scan.
- Chemical/alkali burns of the conjunctiva and cornea.^{1,3}
- Sudden painless loss of vision; initial assessment and management of retinal arterial occlusion, central retinal vein occlusion, acute ischaemic optic neuropathy, temporal arteritis, optic neuritis, urgency of treatment.^{1,3}
- Severe intraocular infection; initial assessment and management of hypopyon.
- Acute angle closure glaucoma; initial assessment and management with acute reduction of intraocular pressure.^{1,3}
- Liaison with Radiological department, Microbiologist, ENT and Faciomaxillary surgeons.

To know to level 2

- Eye protection and prevention of injury.
- Lateral canthotomy and inferior cantholysis for retrobulbar haemorrhage.

Index Core Skills

To be competent to exit descriptor 3

- Perform removal of superficial foreign body.
- Perform corneal epithelial debridement.
- Perform repair of minor conjunctival/lid lacerations.
- Placement of a BCL.
- Irrigation of eye following chemical injury.
- Removal of sutures from the eye and adnexae.
- Performance of 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}
- Performance of informed consent 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}

Assessment throughout Core Training

1. WBA

MT1

Management of chemical injury of the cornea and conjunctiva (mini-CEX) see Section 2.

MT2

Post-operative endophthalmitis – initial management with special reference to knowledge of antibiotics and doses (mini-CEX).

MT3

N/A

2. SFO. Orbital wall fracture, Blow-out fracture. Traumatic Hyphema. PVD. Commotio Retinae. Post-operative iris prolapse.

3. MRCSI Part II.

4. eLogbook: Suture removal, lid laceration repair, corneal debridement.

5. Human Factors OSCE.

6. Consultant Trainer Report.

Appendix B

Specialist Training in Medical Ophthalmology Syllabus MT4 – MT5

Overview

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

Overview

The syllabus for Specialist Training in Medical Ophthalmology comprises the following components:

Key topics: which all trainees will cover by certification and will be able to understand and manage straightforward and moderately complex cases independently, including complications.

Index procedures: refer to some of the more commonly performed clinical interventions and procedures in each speciality. They represent evidence of technical and clinical competence across a range of speciality procedures, ensuring that the required elements of specialty-practice are acquired and adequately assessed. Direct Observation of Procedural Skills and mini-CEX assessments assess trainees carrying out index procedures (whole procedures or specific sections) to evidence learning.

Standards: The standard of knowledge and skill is highlighted for both key topics and index procedures for each section.

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

1. Case and Evidence Based discussions/presentations.
2. Workplace Based Assessments – include mini-CEX, DOPS.
3. eLogbook.
4. ICO Subspecialty Assessment.
5. EBOD
6. Audit.
7. CAPA appraisal.

1. Medical Retina for Specialist Training in Medical Ophthalmology

Objective: To have acquired, by active involvement in supervised, specially designated medical retina clinics, demonstrable proficiency in the diagnosis and management of medical retina to knowledge and competence level 4.

Key Topics: Essential Clinical Experience

To know to level 4

- How to take a history relevant to posterior segment disease.^{2,4,5}
- Classical symptoms of posterior segment disease and relation to disease entity.^{2,4,5}
- Assessment of visual function- Logmar and Snellen visual acuity, Amsler Grid testing, contrast sensitivity, pupillary examination.²
- Signs of vitreous abnormalities - vitreous detachment (PVD), syneresis and vitreous opacities (including asteroid and hemorrhage) and vitreous cells detection (inflammatory, neoplastic and pigment).^{2,4,5}
- The signs of retinal vasculature abnormalities in relation to systemic/ocular disease (Hypertension, Diabetes Mellitus, Retinal vascular occlusions, retinal arteriolar occlusions, drug (plaquenil) toxicities, neovascularisation, intraretinal microvascular abnormalities (IRMAs), retinal vasculitis (arteritis or venulitis), ocular ischaemic syndrome).^{2,4,5}
- The signs of macular abnormalities – abnormal foveal reflex, Watske-Allen sign, epiretinal membrane, retinal thickening, 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.^{2,4,5}
- Flashes and floaters, complications of posterior vitreous detachment and recognition of retinal tears.^{2,4,5}
- Vitreous hemorrhage from retinal tears or neovascularization, initial mx.^{2,4,5}
- Retinal detachment, classification, predisposition, recognition, surgical choice for re-attachment & urgency of treatment, recognition of proliferative vitreoretinopathy.^{2,4,5}
- Diabetic retinopathy, classification, screening strategies and management.^{2,4,5}
- Hypertensive and arteriosclerotic retinopathy, including macroaneurysms and branch retinal vein occlusion.^{2,4,5}
- Retinal vascular occlusions, recognition of ischaemic and exudative responses, rubeosis.^{2,4,5}
- Macular diseases, including recognition and management of age-related maculopathy, subretinal neovascularization, cystoid macular oedema, macular hole, related symptomatology and urgency of treatment.^{2,4,5}
- CRAO / Giant Cell Arteritis.⁵
- Medical workup of retinal vascular disease and importance of Risk Factor control.
- Differential diagnosis and treatment of malignant melanoma and recognition of suspicious naevi.⁵
- Anterior and posterior uveitis- classification, toxoplasmosis, clinical signs and treatment.⁵
- Low vision Aid services and blind registration services
- Toxic maculopathy
- RCTs 1,2,4
 - BRVO, CRVO, BRAVO studies
 - BRIGHTER / CRYSTAL
 - ETDRS, DRS Studies
 - MARINO, PIERS
 - IVAN, CATT studies
 - RESOLVE/RESTORE/RETAIN
 - RISE/RIDE
 - VISTA/VIVID
 - DRCR.net
 - AREDS I and II
 - DCCT, UKPDS
 - ADVANCE ACCORD

To know to level 3

- Signs of retinal abnormalities - retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (classification rhegmatogenous or exudative, predisposition, recognition, surgical choice for re-attachment and urgency of (macula on/off) treatment, recognition of proliferative vitreoretinopathy classification), inflammatory change (snowbanking).
- Signs of choroidal or scleral disease - choroidal melanoma, inflammatory choroidal disease (choroiditis, granuloma), posterior scleritis.
- Senile/acquired retinoschisis, - recognition and laser testing to differentiate from retinal detachment.
- Intraocular lymphoma.
- Toxocara and sympathetic ophthalmia, retinal vasculitis.
- Genetic retinal disease, retinal dystrophies, (retinoblastoma).
- Coats' disease, other telangiectasis and the retinal phakomatoses.
- AIDS-related opportunistic infections and anti-AIDS treatment .

To know to level 2

- Vitreoretinal surgery, including closed intraocular microsurgery, scleral buckling and internal tamponade.
- Intraocular foreign body detection, complications and management.
- Indocyanine green angiography, electrodiagnostic tests and dark adaptation.
- Other vasoproliferative vitreoretinopathies including sickle cell retinopathy, retinopathy of prematurity, Eales' disease.
- Genetic vitreoretinal disease – Stickler syndrome, X-linked retinoschisis, choroido-retinal coloboma.

Index Medical Retina Procedures / Skills

Clinical Skills

- 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
- Perform a diagnostic examination of vitreous including vitreous detachment (PVD), syneresis and vitreous opacities (including asteroid and hemorrhage) and vitreous cells detection (inflammatory and pigment).²
- Perform a diagnostic examination of macula (90 D, 78 D)- including foveal reflex assessment, Watske Allen test, epiretinal membrane, retinal thickening, choroidal neovascular membrane, drusen, RPE change, pigment epithelial detachment, central serous disease and macular hole.²
- Perform a diagnostic examination of the peripheral retina - (90 D, 78 D, 20 D), T-mirror, indirect indented examination, retinal drawings, retinal breaks (atrophic holes, horse-shoe tears, u-tears, retinal dialysis), retinal detachment (rhegmatogenous or exudative), inflammatory change (snowbanking).²

Imaging Skills (competent to exit descriptor level 4)

- Optical Coherence Tomography - perform and interpret vitreoretinal interface pathology, intraretinal pathology and subretinal pathology based on OCT appearance.^{2,4,5}
- Fundus Fluorescein angiography - indications, complications and interpretation.^{2,4,5}
- B-scan ultrasonography - indications, patterns and interpretation (vitreous haemorrhage, retinal detachment, intraocular mass lesions, ocular trauma and suprachoroidal hemorrhage).^{2,4,5}

Retinal performance skills (competent to exit descriptor level 4)

- Laser (via slit-lamp) for retinal tear.^{2,3}
- Laser via indirect ophthalmoscope system for retinal tear or neovascularisation.^{2,3}
- Macular Laser – focal/grid.^{2,3}
- Intravitreal injection: technique, indications, complications and protocols for age related macular degeneration, retinal vein occlusion and diabetic maculopathy.^{2,3}
- Sub-tenons steroid injection technique for posterior segment disease and as LA for pre-laser.^{2,3}

Assessment tools throughout Medical Retina (MR) Module

1. **Structured Case and Evidence-based Discussions** - RCTs presentations (see Appendix C).
2. **WBAs** (See Appendix C schedule – 4 are summative).
 - Mini- CEX: 1. CNV 2. DM and B/PDR 3. DME 4. CRVO / BRVO 5. ARMD dry.
 - DOPs 1. Intravitreal injection 2. Macular laser grid / focal 3. Indirect PRP laser.
3. **eLogbook (minimum numbers)**
 - Laser via S/L for retinal tear (5).
 - Laser via indirect ophthalmoscope system for retinal tear or neovascularisation (5).
 - Scatter laser of the peripheral retina (PRP) (30).
 - Macular Laser – focal/ grid (15).
 - Intravitreal injections (150).
 - Sub-tenons injection technique for posterior segment disease (5) and as LA for pre-laser (10).
4. **ICO Medical Retina Assessment Panel:**
 - Format: Viva voce with 4/5 Scenarios: 1. ARMD, 2. Retinal vascular occlusions, 3. Diabetic Retinopathy (DME, PDR, DM) 4. Retinal Imaging. 5. General.
5. **European Board of Ophthalmology (EBOD).**
6. **Audit.**
7. **Consultant Trainer Report.**
8. **CAPA appraisal.**

2. Glaucoma for Specialist Training in Medical Ophthalmology

Objective: To have acquired, by active involvement in supervised, specially designated glaucoma clinics, demonstrable proficiency in the diagnosis and management of glaucoma to knowledge and competence level 4.

Key Topics: Essential Clinical Experience

To know to level 4

- How to take an accurate history in relation to the risk factors for glaucoma.^{2,4,5}
- How to perform an accurate and reliable clinical examination of the anterior segment relevant to glaucoma - pachymetry, identification of PDS, PXF, anterior segment dysgenesis, ICE etc, gonioscopy, tonometry and optic nerve head assessment.²
- How to assess the optic nerve head in glaucoma, the importance of optic disc size, the wide variation in appearance of normal optic discs and the relevance of inter-observer and intra-observer error in the assessment process.^{2,3}
- To understand in-depth the aetiology, risk factors and pathophysiology of primary open angle glaucoma.^{1,2,4,5}
- To know the diagnosis, management and treatment of both normal pressure and high pressure open angle glaucoma.^{1,2,4,5}
- To accurately diagnose and manage (medically) and treat (laser level 3) acute angle closure glaucoma.²
- To know the diagnosis, management and treatment of primary angle closure glaucoma.^{2,4,5}
- To know the anatomical landmarks in the angle, the wide variation in appearance of normal angles and the criteria for definition of an occludable angle.²
- To understand the aetiology and pathophysiology of ocular hypertension as well as secondary open angle glaucomas such as PDG, PXF, traumatic etc.^{1,2,4,5}
- To understand the physiology of white-on-white perimetry as well as frequency doubling technology and to interpret visual field analysis with particular understanding of inherent difficulties with test reliability and test variability.^{1,2,4,5}
- To monitor visual fields for progression & to understand the limits & benefits of visual field software analysis in the measurement of VF progression.^{1,2,4,5}
- To understand risk calculators in relation to ocular hypertension.^{1,2,4,5}
- To understand the importance of systemic vascular conditions, in particular vasospasm and low blood pressure, and glaucoma.^{1,2,4,5}
- How to design an individual management plan leading to a target IOP.
- To prescribe the appropriate pharmacological therapy and to advise patients of adverse reactions and side effects of therapy.^{2,4,5}
- To assess effectiveness of therapy.^{2,4,5}
- To know when surgery, laser or other interventions are indicated.^{2,4,5}
- To explain to patients and relatives the implications of a diagnosis of glaucoma in relation to prognosis, chronicity of disease and compliance with treatment.²
- Essential Reading:^{1,2,4,5}
 - European Glaucoma Society Guidelines 2010
 - OHTS Study
 - CIGTS Study / AGIS Study
 - CNTG Study
 - Early Manifest Glaucoma Trial
 - New York Glaucoma Study

To know to level 3:

- To know the treatment of primary/secondary closed angle forms of glaucoma.
- To understand the pharmacology and pharmacokinetics of topical and systemic glaucoma medication.
- To understand the limits and benefits of new optic disc imaging techniques
- To diagnose rubeotic glaucoma and provide early management.
- Glaucoma drainage surgery, indications, complications and their treatment.
- Liaison with glaucoma shared care schemes.
- Other secondary glaucomas including phacolytic, erythroclastic, and silicone-oil glaucomas, Posner Schlossman syndrome, chronic closed angle glaucoma and malignant glaucoma.
- Glaucoma referral refinement programme.

To know to level 2

- Hypotony, including its causes and consequences.
- Prevention of glaucoma bleb failure e.g. using anti-metabolites.
- Cycloablation.
- Drainage tubes and stents.

Index Glaucoma Module Skills

To be competent to exit descriptor level 4 in

- Applanation tonometry (Goldmann, Tonopen, Perkins).²
- Calibration of Goldmann Applanation Tonometer.²
- Pachymetry to measure central corneal thickness.²
- Assessment of irido-corneal angle structures by gonioscopy including indentation gonioscopy, use of a variety of lenses.²
- Optic disc assessment and evaluation.^{2,4,5}
- Visual field testing and interpretation, including progression analysis of white-on-white Standard Automated Perimetry (SAP) and Frequency Doubling Technology (FDT).^{2,4,5}
- Argon laser trabeculoplasty.³
- Optic nerve imaging and retinal nerve fiber layer analysis – OCT, HRT.^{2,4,5}
- YAG laser peripheral iridotomy (5).^{2,3}

Assessment tools throughout Glaucoma Module

1. **Structured Case and Evidence-based Discussions** - RCTs presentations (see Appendix D).

2. **WBAs** (See Appendix D schedule – 4 are summative).

- Mini- CEX: 1. OHT 2. POAG/PXF 3. NTG 4. Angle closure.
- DOPs 1. YAG laser peripheral iridotomy (DOPs).
- YAG PI 1. OCT performance and analysis
- CBDs 1. ONH analysis. 2. VF progression.

3. **eLogbook**

- Laser YAG PI (10)
- Laser ALT (TBC)

4. **ICO Glaucoma Assessment Panel:**

- Format: Viva with 4/5 Scenarios: 1. OHT, 2. POAG/NTG/PXF 3. VF analysis 4. ONH Imaging. 5. General.

5. **European Board of Ophthalmology Diploma (EBOD).**

6. **Audit.**

7. **Consultant Trainer Report.**

8. **CAPA appraisal.**

3. Paediatric Ophthalmology for Specialist Training in Medical Ophthalmology

Objective: To have acquired, by active involvement in supervised, specially designated paediatric clinics, demonstrable proficiency in the diagnosis and management of paediatric ophthalmology to knowledge and competence level 4.

Key Topics: Essential Clinical Experience

To know to level 4

- Visual screening in infants and children.
- The apparently blind infant, normal and delayed visual maturation, learning disabilities and role of visual electro-physiology.
- Amblyopia, anisometropic, stimulus-deprivation, strabismic prevention and treatment using occlusions, filters, fogging and atropine, current evidence-base for best practice.
- Concomitant strabismus, screening strategies, epicanthal anatomy, refractive and accommodative aspects, appropriate prescribing, interpretations of orthoptic report, indications for surgery, prediction of post-operative diplopia, indications for repeat surgery, potential outcomes of surgery, motor / sensory fusion.
- Infantile esotropia, risk of amblyopia, DVD, overall management as well as indications and timing of surgery, visual prognosis, indications for repeat surgery.
- Esotropia, partially / fully accommodative, role of hyperopia, AC/A ratio, active management with appropriate prescribing, management of associated amblyopia, timely follow-up, indications for bifocals, indications for and timing of surgery.
- Exotropia, intermittent, role of myopia, AC/A ratio, active management with appropriate prescribing, timely follow-up, indications for and timing of surgery.
- Incomitant strabismus, cranial nerve palsies including infectious / inflammatory mononeuropathies, ability to recognize atypical presentation of 'strabismus', urgency of referral / imaging,
- Ocular motility syndromes (Duane's Brown's).
- Nystagmus, congenial and acquired.
- Diagnosis & management of paediatric lens abnormalities including congenital cataract, unilateral and bilateral, prevention of amblyopia, indications for and timing of surgery.
- Diagnosis of paediatric glaucoma, including recognition of congenital glaucoma.
- Diagnosis and management of paediatric uveitis and paediatric systemic disease with ocular involvement including guidelines for screening for uveitis in JIA.
- Guidelines for screening for Hydroxychloroquine toxicity.
- Diagnosis of paediatric retinal disease.
- Diagnosis, management and treatment of paediatric neuro-ophthalmology and diseases affecting vision including ptosis.
- Ophthalmia neonatorum, diagnosis, management & treatment.
- Congenital nasolacrimal obstruction: recognition, management, referral.
- Dx & mx of staphylococcal blepharoconjunctivitis & allergic vernal keratoconjunctivitis.
- Diagnosis & management of orbital cellulitis presenting in children.
- Diagnosis and management of preseptal and orbital cellulitis presenting in children.
- Diagnosis and management of accidental and non-accidental eye injury.
- Evaluation of optic nerve head swelling / drusen.
- Ocular albinism.
- The approach to infants/children/parents & liaison with special needs, pediatricians, geneticists, and timely access to appropriate educational support services.
- Essential Reading
 1. Cotter SA. Paediatric Eye Disease Investigator Group. Treatment of anisometropic amblyopia in children with refractive correction. *Ophthalmol* 2006; 113:895-903.
 2. Paediatric Eye Disease Investigator Group. A randomized trial of atropine vs. patching for treatment of moderate amblyopia. *Ophthalmol* 2008;126:1039-44.
 3. Paediatric Eye Disease Investigator Group. A randomized trial of prescribed regimens for treatment of severe amblyopia in children. *Ophthalmol* 2003;110: 2075-87.

4. Repka MX, Beck RW et al. A randomized trial of patching regimens for treatment of moderate amblyopia in children. Arch Ophthalmol 2003;121:603-11.
5. Schieman MM. Paediatric Eye Disease Investigator Group. A randomized trial of Treatment of amblyopia in children age 7 to 17 years. Arch Ophthalmol 2005;123:437-47.
6. Preferred Practice Patterns in Pediatric Ophthalmology, AAO.

To know to level 2

- Diagnosis management and treatment of paediatric uveitis and paediatric systemic disease with ocular involvement.
- Diagnosis management and treatment paediatric retinal disease.
- Diagnosis management and treatment of paediatric glaucoma, including congenital glaucoma.
- Diagnosis management and treatment of paediatric ocular tumours including the differential diagnosis of leucocoria and differential diagnosis of retinoblastoma.
- Ocular myopathies and the neuromuscular junction.
- Oblique muscle, vertical muscle and adjustable suture surgery.
- Retinopathy of prematurity, screening and treatment.
- Genetic and developmental disorders, Leber's amaurosis, X-linked schisis, Coats' disease.
- Paediatric neurological diseases.
- Presentation of raised intracranial pressure in infancy and childhood.
- Orbital tumours in children, including rhabdomyosarcoma.
- Services for the rehabilitation of the visually disabled child and patient advocate

Index Core Skills

To be competent to exit descriptor 4 in

- Communicating effectively, with healthy, ill and / or un-cooperative children and their parents, to optimize yield of clinical examination.
- Determining the visual acuity in infants and children including fixation, preferential looking, single and linear optotype tests.
- Performing fundoscopy in children.
- Performing cycloplegic refraction and prescribing for children including bifocals and Fresnel prisms.
- Performing cover test in infants / children (including alternate/prism) including identifying and characterizing esotropic and exotropic ocular motility conditions in children.
- Performing stereo tests in infants / children, to include the management of amblyopia and of disorders of binocular function.
- Evaluating and referring patients for orthoptic treatment as appropriate, monitoring progress of amblyopia treatment, evaluating the suitability of prisms as a corrective measure for the patient.
- Identifying and characterizing vertical strabismus, Duane's syndrome and Brown's syndrome.
- VOR suppression test.

Assessment tools throughout Paediatric Module:

1. **Structured Case and Evidence-based Discussions** - RCTs presentations (see Appendix E).

2. **WBAs** (See Appendix E schedule – 4 are summative).

- Mini- CEX:
1. Orbital cellulitis in a child.
 2. Management of Amblyopia – evidence-based.
 3. Infantile esotropia.

- DOPs:
1. Examination of an infant – assessment of visual acuity in an infant, cycloplegic refraction and indirect ophthalmoscopy.
 2. Esotropia - Cover test, the prism cover test, cycloplegic refraction & spectacle prescription and management plan.
 3. Exotropia – Cover test, the prism cover test, cycloplegic refraction, spectacle prescription and management plan.

3. eLogbook

- Paediatric refractions x 30.

4. ICO Paediatric Assessment Panel:

- Format: Viva with 6 Scenarios: 1. Esotropias, 2. Exotropias. 3. Amblyopia 4. Refraction and prescribing. 5. Life and sight-threatening conditions. 6. Screening.

5. European Board of Ophthalmology Diploma (EBOD).

6. Audit.

7. Consultant Trainer Report.

8. CAPA appraisal.

Appendix C

Medical Retina Module.

Timetable for core activities and WBAs

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic: ARM D (wet)	Topic: DR	Topic: DME	Topic: AREDS	Topic: CRVO/BRVO	Topic: DM
RCTs MARINO PIERS IVAN CATT LUCAS	RCTs ETDRS Study	RCTs RESOLVE/RESTORE /RETAIN RISE/RIDE VISTA/VIVID, BOLT DRCR.net	RCTs AREDS I AREDS II	RCTs BRVO Study BRAVO BRIGHTER CRYSTAL	RCTs DCCT, UKPDS ADVANCE ACCORD
Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs
Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD
Week 3 Mini-CEX CNV	Week 3 Mini-CEX BDR/PDR	Week 3 Mini-CEX DME	Week 3 Mini-CEX Dry ARM D	Week 3 Mini-CEX C/BRVO	Week 3 Mini-CEX DM
Week 4 DOPs Intravitreal injection	Week 4 DOPs Fundal examination Indentation	Week 4 DOPs Macular Grid	Week 4 DOPs FFA/OCT* interpretation	Week 4 DOPs PRP indirect	Week 4 DOPs Focal Laser
	Retinal Course		Host IC/SFS		

Appendix D

Glaucoma Module

Timetable for core activities and WBAs

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic: OHT	Topic: NTG	Topic: ONH analysis	Topic: POAG/PXF	Topic: AACG	Topic: Progression /Visual Fields
RCTs OHTS	RCTs CNTG NYGS		RCTs AGIS CITGS EMGT PXF Study	RCTs EAGLE	RCTs Bal Chauhan
Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs	Week 1 Teach RCTs
Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD
Week 3 Mini-CEX OHTs	Week 3 Mini-CEX NTG	Week 3 Mini-CEX ONH assessment	Week 3 Mini-CEX POAG/PXF	Week 3 Mini-CEX Angle closure	Week 3 Mini-CEX VF progression
Week 4 DOPs Optic Disc Assessment	Week 4 CBD VF analysis	Week 4 DOPs Gonioscopy	Week 4 DOPs OCT analysis	Week 4 DOPs YAG PI/ALT	Week 4 CBD VF progression
Host: Optic Disc / VF Lecture	Glaucoma Study Course		Host IC/SFS		Host: Optic Disc / VF Lecture

Four WBAs will be summative.

Appendix E

Paediatric Module

Timetable for core activities and WBAs

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic: Amblyopia RCTs Paediatric Eye Disease Investigator Group	Topic: Esodeviations Relevant RCTs	Topic: Refraction and Prescribing Relevant RCTs	Topic: Exodeviations Relevant RCTs	Topic: Congenital/infantile cataracts Relevant RCTs	Topic: General Relevant RCTs
Week 1 Teach	Week 1 Teach	Week 1 Teach	Week 1 Teach	Week 1 Teach	Week 1 Teach
Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD	Week 2 WBA: CBD
Week 3 Mini-CEX Mx of Amblyopia	Week 3 Mini-CEX Mx of infantile esotropia	Week 3 Mini-CEX Mx of accomd Esotropia	Week 3 Mini-CEX Mx of childhood exotropia	Week 3 Mini-CEX Mx uni - bilateral infantile/congenital cataracts	Week 3 Mini-CEX Mx Orbital cellulitis/NLDO, vernal KC
Week 4 DOPs Cycloplegic Refraction in a child	Week 4 DOPs* CT, refraction, examination of childhood esotropia	Week 4 DOPs* VA, CT & fundoscopy in an infant - N	Week 4 DOPs* CT, refraction, examination of childhood exotropia	Week 4 DOPs* VA, CT & fundoscopy in an infant - AbN	Week 4 DOPs TBC
Strabismus Course	Refraction Course		Host IC/SFS		

Four WBAs will be summative.

*recommended for summative assessment

Appendix F

Compulsory and Recommended Courses and Meetings

The ICO organises an annual calendar of educational meetings and courses including a yearly 3 day clinical and scientific meeting.

Compulsory Courses for Core Training in Ophthalmology MT1 – MT3

Strabismus Course – University Hospital Waterford
Refraction Course
Retina Meeting

Compulsory Courses for higher Training in Medical Ophthalmology MT4 – MT5

Strabismus Course – University Hospital Waterford
Irish College of Ophthalmologists Annual Meeting (May)

Highly Recommended National Meetings / Study days

National Meetings
Royal Academy of Medicine in Ireland (ophthalmic section) - Spring and Winter Meeting (NCHD presentations)
Irish College of Ophthalmologists Annual Meeting (May)
Adare Retinal Meeting – Miss Marie Hickey-Dwyer Limerick
Phaco Course – Alcon Laboratories Hemel Hempstead
Microsurgical Skills Day – RVEEH, Dublin
Glaucoma Study Day – RVEEH, Dublin
Ocular Pathology – Dr Susan Kennedy, HSE Adelaide Road*
Local Anaesthetics Course – Royal Victoria Eye and Ear Hospital, Dublin
Ocular Trauma / Emergency Ophthalmology Course

Highly Recommended International Meetings

International Paediatric Meeting, Dublin - Mater & Temple St Hospitals
International Refractive Meeting, Dublin - Mater & Temple St Hospitals
Royal College of Ophthalmologists Annual Meeting (RCOphth)
European Society of Cataract and Refractive Surgeons (ESCRS)
American Academy of Ophthalmology (AAO)
Association of Research and Vision in Ophthalmology (ARVO)

Information on other highly recommended national and international meetings are circulated by the ICO to all members.

Appendix G

Criteria for Certificate of Completion of Core Training

On successful completion of MT1 – MT3 Training, Trainees may be issued with the Certificate of Completion of Core Training (CCCT)

The criteria for eligibility for the CCCT are as follows:

1. Successful completion of MT1, MT2 and MT3
2. Satisfactory CAPA appraisals for each 6 months of the first 3 years.
3. Satisfactory achievement of all WBAs at each competency point.
4. Successful completion of the MRCSI Examination.
5. Successful completion of the Human Factors OSCE Examination (RCSI).
6. Documented attendance at obligatory ICO courses.
7. A validated logbook to include:
 - 150 intravitreal injections
 - 20 panretinal lasers and 5 macular lasers (including 5 grids)
 - 10 YAG capsulotomy lasers
 - 5 YAG laser PIs
 - 20 minor procedures (S+P, I+C, lesion excision and biopsy etc)
 - 5 ectropion
 - 0 entropion
 - Refraction cases x 30
8. Audit

Appendix H

Selection Criteria for entry into Specialist Training in Medical Ophthalmology

1. Successful completion of Core Training
2. Satisfactory CAPA appraisals for each 6 months of the first 3 years.
3. Satisfactory achievement of all WBAs at each competency point.
4. Successful completion of the MRCSI Examination.
5. Successful completion of the Human Factors OSCE Examination (RCSI).
6. Documented attendance at obligatory ICO courses.
7. A validated logbook to include:
 - 150 intravitreal injections
 - 20 panretinal lasers and 5 macular lasers (including 5 grids)
 - 10 YAG capsulotomy lasers
 - 5 YAG laser PIs
 - 20 minor procedures (S+P, I+C, lesion excision and biopsy etc)
 - 5 ectropion
 - 0 entropion
 - Refraction cases x 30
8. Clinical cases logbook for entry into year 4 to include:

1 managed case of glaucoma:	POAG, NTG or OHT
1 managed case of uveitis:	Anterior or posterior
1 managed case of ARMD :	Wet or dry ARMD
1 managed cases of CRVO:	Ischaemic or non- ischaemic
1 managed cases of childhood strabismus:	Esotropia or exotropia
3 managed cases of acquired strabismus:	IV x 1, VI x 1, III CR N palsy x 1
2 managed cases of neuro-ophthalmology:	CSF/GCA/ Horner's
2 managed cases of anterior segment:	Herpetic and microbial keratitis
9. Audit

Appendix I

Exit Criteria for the Award of Certificate of Completion of Specialist Training

On completion of Specialist Training in Medical Ophthalmology, trainees may apply for the Certificate of Completion of Specialist Training. The Certificate will be awarded on successful achievement of

1. The required minimum number of procedures.
2. Achievement of the European Board of Ophthalmology Diploma (EBOD).
3. Satisfactory CAPA appraisal for each six months of Specialist Training in Medical Ophthalmology (CAPA X 4).
4. Passing of each viva voce assessment by sup-specialty Panel in Medical Retina, Glaucoma & Paediatrics
5. Successful passing of the HFs modules for MT4 & MT5
6. Audit x 2.
7. Practice Management Module.

Total number of procedures needed (core + specialist training) for trainees to apply for CCST

1. Laser

YAG laser Capsulotomy	50	(10 + 40)
YAG laser iridotomy	15	(5 + 10)
Laser to retinal tear	15	(5 + 10)
Pan-retinal photocoagulation	50	(20 + 30)
Macular Laser	20	(5 + 15)

2. Lids / Lacrimal

(a) Minor Surgery	Ectropion/Entropion	10	
	Incision and curettage of Meibomian	20	
	Excision of cyst and papilloma	20	
	Electrolysis and trichiasis	10	
(b) Lacrimal	S + P lacrimal ducts	20	
	Punctal plugs	20	
(c) Trauma	Lid and facial lacerations	5	

3. Retinal

Intravitreal Injections	300	
Subtenons injection LA	10	
Subtenons injection (steroid)	5	

4. Clinical Cases Logbook

Glaucoma	5	
Medical Retina	5	
Paediatrics	5	

5. Refraction Logbook:

Adults	60	(30 + 30)
Paediatric	30	

6. Audit:

MT4 & MT5 Audit		
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Appendix J

Quality Indicators and Standards for Core Training in Medical Ophthalmology

Requirements (Q1 & Q2) and Recommendations (Q3, Q4, Q5, Q6 & Q7):

Quality Indicator													
1. Timetable	<p>Trainees in Core Training in Medical Ophthalmology must have a timetable compliant with the below standard: Casualty: x 2 sessions (3 is allowed but not recommended) General clinics: x 3 sessions RSTA: x 1 session Other x 3: may include laser session, special clinic, or PAC provided it is supervised by consultant, virtual clinic</p>												
2. Procedural/ Technical Experience	<p>Trainees in Core Training in Medical Ophthalmology * must be given the training opportunities to perform the below minimum standard of completed cases by year 1, 2 and 3.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="border: none;">MT</th> <th style="border: none;">YR 1</th> <th style="border: none;">YR 2 (total: includes yr 1)</th> <th style="border: none;">YR 3 (total: includes yr 1 / 2)</th> </tr> </thead> <tbody> <tr> <td style="border: none;">PRP</td> <td style="border: none;">M= 5 C= 2</td> <td style="border: none;">M= 5 C= 5</td> <td style="border: none;">C= 20</td> </tr> <tr> <td style="border: none;">Lid surgery**</td> <td style="border: none;">M= 2 C= 1</td> <td style="border: none;">M= 2 C= 2</td> <td style="border: none;">C= 5</td> </tr> </tbody> </table>	MT	YR 1	YR 2 (total: includes yr 1)	YR 3 (total: includes yr 1 / 2)	PRP	M= 5 C= 2	M= 5 C= 5	C= 20	Lid surgery**	M= 2 C= 1	M= 2 C= 2	C= 5
MT	YR 1	YR 2 (total: includes yr 1)	YR 3 (total: includes yr 1 / 2)										
PRP	M= 5 C= 2	M= 5 C= 5	C= 20										
Lid surgery**	M= 2 C= 1	M= 2 C= 2	C= 5										
3. In-house Teaching	<p>Trainees in Core Training in Medical Ophthalmology should have at least 2 hours of facilitated formal teaching each week (on average). For example, locally provided teaching, regional meetings, annual specialty meetings, journal clubs.</p>												
4. Quality of Training and Supervision	<p>Trainees in Core Training in Medical Ophthalmology Training should have the opportunity to be adequately supervised in clinic, on the ward and on-call, with rotational learning agreements, protected minor ops / laser time with training opportunities, one to one feedback on performance every 3 months, regular one to one sessions, appropriate length of clinics, appropriate number of pts per trainee and easily accessible support from a senior colleague when on call.</p>												
5. Assessment / Feedback:	<p>Trainees in Core Training in Medical Ophthalmology should complete a minimum of 8 WBAs per year, the mix of which will depend upon their specialty and level of training. (In the process of being introduced).</p>												
6. Audit	<p>Trainees in Core Training in Medical Ophthalmology should have the opportunity and study time to complete and present one audit project every 12 months.</p>												
7. Facilities	<p>Trainees in Core Training in Medical Ophthalmology should have easy access to educational facilities, including library and IT resources, for personal study, audit and research.</p>												

*trainee who identify themselves in year 1 and year 2 as choosing the career path of an Medical Ophthalmologistst do not have to attain these surgical numbers.

**Lid Surgery is defined as Lid surgery includes any ectropion / entropion surgery for example lateral canthal tendon tightening, wedge resection etc but not excisions biopsies, I+C of cysts, S+Ps, punctual procedures or ptosis procedures etc.