Irish College of Ophthalmologists

Eye Doctors of Ireland

Protecting your Vision

CURRICULUM

Specialist Training in Medical Ophthalmology

V1.0

Contents

Introduction

The Specialist Training in Medical Ophthalmology (STMO) Curriculum provides the structure for specialist training, culminating in graduation as a medical ophthalmologist at specialist registration level with achievement of the Certificate of Completion of Specialist Training (CCST).

The first part of this document explains the overall outline of the National Training Program, the entry and exit criteria, the stages of training and the format of clinical rotations across clinical sites.

The second part details the two syllabi and Human Factors Program which lay down the standards of speciality based knowledge, clinical judgement, technical and procedural skills and professional skills and behaviour, which must be attained at each stage of training. The core syllabus highlights the standards and content of the first three core foundation years, where medical and surgical ophthalmology have a common training period. The specialty-specific syllabus details the specific requirements to graduate as a medical ophthalmologist at specialist registration level. The Human Factors Program 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 programs, 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 Programme of Specialist Training in Medical Ophthalmology. 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 Specialist Training in Ophthalmology program and are available on the ICO website. Those who are selected into the National Specialist Training Programme must acquire recognized 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 program and obtain their Certificate of Completion of Specialist Training (CCST).

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 form 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 Ophthalmic Specialists completing the training programme are more than just technical experts.

- There is systematic progression from year 1 through to year 3 followed by competitive entry into specialist training in medical ophthalmology.

- The curriculum enables trainees to develop as generalists within ophthalmology, to be able to deliver an oncall 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 program and within the workplace.

Curricular design, competency points and progression through the Training Pathway

Curricular Design 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 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 program itself.

Competency points

- Entry into Core Training in Ophthalmology (CTO).
- Six-monthly CAPA appraisals during CTO Y1, 2 and 3.
- End of core years CTO Y1, 2 and 3.
- Entry into Specialist Training in Medical Ophthalmology (STMO).
- Exit with Certification of Completion of Specialist Training (CCST).

A critical competence point is at the end of CTO Y3 at which point, in practice, the trainee will make a clear commitment to pursue specialist training in medical ophthalmology to specialist registration level (SRL) with exit of the program and attainment of the CCST.

STAGES OF TRAINING

STAGES OF TRAINING

A. Framework and Delivery of Core Training in Ophthalmology for Year 1, Year 2 and Year 3

Core Training in Ophthalmology (CTO)

The *aim* of the Core Training in 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. Within these core years of training, defined as CTO Y1, CTO Y2 and CTO Y3, much of the content is common across both surgical and medical ophthalmology. Competences that are common to all ophthalmic specialties are defined as **common competences**. Training in the core years centres on the achievement of these core common competences. These competences are detailed in the Core Syllabus (see Appendix A).

Entry in to Core Training in Ophthalmology (CTO)

Entry to the programme will be by competitive interview held centrally at the Irish College of Ophthalmologists. Selection criteria are on the ICO website.

Clinical Rotations and Training Units for CTO Years

Seven training units are nationally recognised by the ICO for ophthalmic specialist training yrs 1-3. The Regional Training Programmes include 3 rotations:

1. Royal Victoria Eye & Ear Hospital & Sligo General Hospital
2. Mater Hospital, University College Hospital Galway & Waterford Regional Hospital
3. Cork University Hospital & Mid-Western Regional Hospital, Limerick

All CTO posts in the seven teaching units are recognised for ophthalmic specialist training (EBO/ICO inspection 2013/14). Specific allocations are determined for each trainee by the regional hospital. It is recommended that trainees spend two years in one training unit and the third year in another department during the initial 3 core years of the curriculum.

Leave during training rotations in CTO

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 CTO

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 of CTO.

Remediation during CTO

A maximum of one year of remediation will be offered during the CTO Program.

Completion of CTO

CTO is a 3 year program. CTO should be completed within 5 years of the start date. Should the CTO completion date change to 5 years beyond the start date, then the trainee will be required to undertake the full three years of CTO from the beginning.

Criteria for completion of CTO and award of Certificate of Completion of Core Training (CCCT)

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

The minimum standards for each training unit are as follows

Each unit must

- Appoint an Educational Supervisor.
- Assign a designated Consultant Trainer to each CTO Trainee, one who meets with the Trainee at the beginning of each six-month rotation and proposes a learning agreement stating achievable clinical or procedural goals for that six months of training.
- Ensure that the Unit's standards of training are in keeping with the Quality Indicators for Core Training in Ophthalmology Y1-3 (see Appendix M).
- Ensure the weekly timetable is in keeping with the recommended ICO guidelines for core training: One RSTA session, a maximum of three casualty sessions (recommendation of only two), two theatre 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 surgical 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 common 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 subspecialty 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 foundation years CTO Y1, CTO Y2 and CTO Y3

Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
In-house teaching		*In-house Journal Club*		
AM				
Theatre*	Clinic	Clinic	Minor ops / Laser	Clinic
PM				
Casualty	Theatre*	Casualty	Clinic	RSTA
			NPGT**	

*Where a trainee makes a clear commitment to STO to SRL from the outset of training theatre sessions will emphasise biometry, preoperative assessments, post-operative assessment, local anaesthetics, draping, intravitreal injections, minor procedures, laser treatments. **NPGT is the monthly National Postgraduate Teaching session that is video-conferenced to all Units nationally.

STAGES OF TRAINING

B. Framework and Delivery of Specialist Training in Medical Ophthalmology

Specialist Training in Medical Ophthalmology STMO

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 on-call emergency service and also deliver more specialised services to a defined level. The program 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. Specialist 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 specialist in medical ophthalmology the training program is located both within hospital-based training units as well as in community clinics.

The STMO modular curriculum has been designed to define the final stage in the development of competent specialist 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 STMO 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 D, E F) underpinning the delivery of the STMO 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 of STMO is therefore based on progression, increasing in both depth and difficulty, through to the completion of training.

Entry into Specialist Training in Medical Ophthalmology

Those who have made a definitive commitment to pursue STMO to specialist registration level (SRL) 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 for their suitability to become an ophthalmologist at specialist registration level. Entry to the programme is by competitive interview held centrally at the ICO.

Selection Criteria for entry into Specialty Training in Medical Ophthalmology (Appendix J)

1. Successful completion of CTO Y1, CTO Y2, CTO Y3.
2. Satisfactory CAPA appraisals for each 6 months of the first 3 core 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 (HF) Examination (see Appendix C).
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 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/ Horners
2 managed cases of anterior segment:	Herpetic and microbial keratitis

9. Audit.

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

Training Units for STMO

Based on the National Inspection of Training Posts by the ICO in January 2014 the following joint training units (combining a central and satellite unit) have been approved for STMO training.

Medical Retina

1. Sligo General Hospital /Letterkenny Community Clinic
2. Waterford Regional Hospital

Paediatric

1. Temple Street Children's Hospital and North Dublin Community Clinic
2. Waterford Regional Hospital / Community Clinic
   Glaucoma TBC

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 ophthalmic specialist to each STMO Trainee, one who meets with the trainee at the beginning of each six-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 STMO 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 need to be inspected on a 3 yearly basis by the chairperson of the Medical Ophthalmologists Committee of the ICO.

Modules for Specialist Training in Medical Ophthalmology

The curriculum for STMO is designed around three modules in the specialty areas of medical retina, glaucoma and paediatric ophthalmology.

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.

Module 1: Medical retina (Appendix D)

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-vitreal 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 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 throughout OST Yr 4).

Module 2: Glaucoma (Appendix E)

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 F)

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 patching regimens, congenital infantile cataract, esotropia, exotropias. 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, congentrial infantile cataract, esotropia, exotropias, epiphora, orbital cellulitis.

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

See Appendix F.

Practice Management Module

This one day module will be organised in conjunction with the RCSI, the RCPI or the GP Training body.

STAGES OF TRAINING

C. Completion of Specialist Training in Medical Ophthalmology

Completion of STMO Training

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

Award of CCST

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

1. The required minimum number of STMO procedures – see below.
2. Achievement of the European Board of Ophthalmology Diploma.
3. Satisfactory STMO CAPA appraisals x 3.
4. Practice Management Module.

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

1.	**Laser**			
		YAG laser Capsulotomy	20	(10 + 10)
		YAG laser iridotomy	10	(5 + 5)
		Laser to retinal tear	10	(5 + 5)
		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	10	
		Excision of cyst and papilloma	20	
		Electrolysis and trichiasis	5	
	(b) Lacrimal	S + P lacrimal ducts	20	
		Punctal plugs	12	
	(c) Trauma	Lid and facial lacerations	5	
3.	**Retinal**			
		Intravitreal Injections	300	(150 + 150)
		Subtenons injection LA	10	(10 + 0)
		Subtenons injection (steroid)	5	(0 + 5)
4.	**Clinical Cases Logbook**			
		Glaucoma	5	(1 + 4)
		Medical Retina	5	(2+ 3)
		Paediatrics	5	(1 + 4)
5.	**Refraction Logbook:**			
		Refraction cases	60	(30 + 30)
6.	**Audit.**			

Career models or variants after specialist registration in Ophthalmology

The Ophthalmic Specialist qualified to specialist registration level may

1. Apply for a HSE public post as a Community Ophthalmic Physician.*
2. Apply for a HSE public post as a hospital-based Ophthalmic Physician.
3. Apply for a contract with the HSE to see Medical Card patients.
4. Apply to the Department of Social Protection for a contract to see PRSI entitled patients.
5. Work alongside their surgical consultant colleagues in a tertiary referral unit.
6. Enter private practice.

* For more detail on the role of the Community Ophthalmic Physician (COP) see Appendix G pg 64.

Continued Professional Development

Once on the specialist registrar, all ophthalmic specialists are required to maintain their professional development in line with the Medical Council requirements for professional competence.

COMPONENTS OF THE CURRICULUM

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The curriculum has been designed around four broad areas:

A: The Syllabi

- **The Core Syllabus** – identifies learning outcomes for the domains of knowledge, clinical and technical skills for each stage of training of the core years.
- **The Speciality–Specific Syllabus** – identifies learning outcomes for the domains of knowledge, clinical and technical skills for each module of year 4, with specialisation to a defined level in medical retina, glaucoma and paediatric ophthalmology.
- **Human Factors Program –** identifies learning outcomes for professional behaviour and leadership skills for each stage of training.

B: Delivery of the Curriculum

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

C: Assessment

- **Assessment** – The standards of training and how the attainment of outcomes is measured/judged to confirm competence.

COMPONENTS OF THE CURRICULUM

A. The Syllabi

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

The Core Syllabus: Appendix A

The Common Core Syllabus is structured to give a general foundation across all disciplines for the first three core years. It reflects the early years of ophthalmic specialist 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 explicitedly clear *what* trainees need to know, *when* they need to know it and *how well* they need to know it. See Appendix A.

The STMO Specialty –Specific Syllabus: Appendix B

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

The Human Factors Syllabus: Appendix C

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.

COMPONENTS OF THE SPECIALIST TRAINING IN MEDICAL OPHTHALMOLOGY CURRICULUM

B. 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 Ophthalmic Specialist 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.

B1. Core Knowledge
B2. Technical, Clinical and Procedural skills
B3. Human Factors

B1. Core Knowledge

The core knowledge section of the Curriculum is delivered through a structured blended teaching and learning education program 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: Years 1-4

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): Years 1-4

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 program 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 (Years 1-4): (Appendix H)

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 CCCT. During STMO, trainees are expected to re-attend the retinal and strabismus course and present on at least one of these occasions.

Annual Strabismus Course (obligatory CTO and STMO)
Neuro-ophthalmology Course (obligatory CTO and STMO)
Annual Retinal Course (obligatory STMO)

Ocular Trauma/ Emergency Course (optional)
Anatomy Course (optional)
Pathology Course (optional)

SCHOOL for Specialists in Ophthalmology (SFSO): Years 1-4
SCHOOL for Specialists in Ophthalmology – SFSO 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 Ophthalmic Specialist 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 4 year training cycle. During STMO, trainees are expected to host one assignment and host one Interactive Classroom per 6 month rotation.

B2. Technical, Clinical and Procedural Skills

The skills section of the Curriculum is delivered through a structured blended teaching and learning education program 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 (Years 1-2):
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 surgical experience and further progress their development as a surgeon. A two day wet-lab phacoemulsification course is obligatory for all year 1 CTOs in the first month of their training. As well as didactic teaching each trainee has 2 x 2-hour individual wetlab tutorials with 1:1 supervision.

Surgical Simulator Tutorials (Years 1-2):
The College employs an EYESI surgical simulator to teach the basic surgical skills of phacoemulsification. The simulator provides the opportunity to practice the steps of phacoemulsification, resulting in a faster and safer transition to live surgery. Each trainee has 2 x access to sessions on the simulator during their first year of training.

Irish College of Ophthalmologists Skills Courses (Years 1-4) (Appendix H)
Throughout the academic year the below courses are delivered by the ICO. Each OST must attend at least one course per year during their training and must have attended all obligatory courses in order to obtain their CCOST. During Year 4, trainees are recommended to re-attend the Refraction course, Retinal Course and Strabismus Course. See Appendix H for relevant courses.

Phacoemulsification Skills Bootcamp Course
Microsurgical Skills Course
Ocular Anaesthetics Course
Refraction Course

B3. Human Factors Course (HF): Years 1-3

Ophthalmic specialists 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 acknowledged experts from the RCSI. The program has ten modules, each of which contains four tutorials, and each module has precise learning objectives. The syllabus is arranged so that the modules can be taken in any order and a system of credits will be used to signify satisfactory completion of individual modules. Each module is designed to be delivered over a one day period and it is intended that each trainee will take three modules per annum. The different modules focus on the areas of leadership and professionalism, interpersonal skills and conflict resolution, crisis management, causes and avoidance of errors, stress management and time management as well as the competencies defined under the 8 domains of good professional practice by the Medical Council.

The training is delivered 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. A Human Factors OSCE style examination is taken in year 1, 2 & 3. Attendance at each module as well as passing of the exam is obligatory in order to complete Core Training in Ophthalmology.

The Modules are

1. Team Work and Team Management
2. Medical Error and PS
3. Personality and Behaviour
4. Conflict resolution
5. Talking to patients
6. Crisis Management
7. Leadership
8. EI and SM
9. Disclosure of error
10. Clinical Dilemmas
11. Management of Critical Incidents

COMPONENTS OF THE CURRICULUM

C: Assessment and Feedback

The Assessment System

Overview

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 STMO Curriculum. Such a system supports a variety of purposes including informing learning and instruction, determining progress, measuring achievement, providing accountability and informing the efficacy of the curriculum itself as to the achievement of specified milestones.

The purpose of the assessment system is to

- Define the performance standard.
- Address the breadth and depth of agreed performance standards across the different domains of the curriculum, not just those that are easy to measure.
- Employ a broad variety of assessment tools or instruments at local, national and international level and incorporate formative as well as summative measures.
- Determine whether trainees have acquired the common and specialty-based knowledge, clinical judgment, procedural and technical skills, and professional behaviour and leadership skills required to practice at the level of an ophthalmic specialist 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 4 stage competence level. Each topic within a stage has a competence level ascribed to it, ranging from 1 to 4, which indicates the depth of knowledge required.

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

In the early 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.
*Intercollegiate Surgical Curriculum Programme UK 2015

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 training program 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 program 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 Training

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. *Intercollegiate Surgical Curriculum Programme UK 2015

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 form start to finish.
- Knows and demonstrates when to call for assistance / advice from the supervisor (knows personal limitations).

3. Can do whole but may need assistance

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 ophthalmic specialist to function?
- Is capable of supervising trainees.

The Assessment Framework

The individual components of the assessment system are

C1. The Consultant Trainer's report.
C2. Workplace-based assessments.
C3. School for Surgeons.
C4. Examinations.
C5. eLogbook.
C6. Audit
C7. Competence and Assessment of Performance Appraisal (CAPA).

C1: 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.

C2: 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 WPBA in any 6 month rotation is determined by the curriculum. A minimum number of four WBAs per clinical placement is indicated in common core training. The number and intensity of WBAs in STMO 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)

C3. 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.

C4. Examinations

Examinations are held after Year 2 of common core training and in the final stages of OST Yr 4 training.

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

The MRCSI is a summative assessment. It assesses knowledge and skills that are encompassed within the common core component of the 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 specialty training and to determine their progress to higher training in OST Yr 4.

The MRCSI assesses knowledge and applied knowledge in the generality of ophthalmic specialty 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 CTO Yr 1 or during CTO Yr 2. Part II can then be taken after the candidate has completed two years of clinical ophthalmology i.e in CTO Yr 3. The MRCSI examination is a formal exit requirement from Core Ophthalmic Specialist Training. It is also a mandatory requirement for entry into STMO 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/index.jsp?1nID=93&pID=106&nID=1736

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 of CTO.

The European Board of Ophthalmology Diploma (EBOD)

The EBOD is a summative assessment. It is held once a year 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 the first year of STMO. The EBOD examination is a mandatory requirement for award of the CCST.

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

Human Factors Program OSCE

An OSCE style exam is held at the end of each year during the common core years of training.

C5. 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 / surgeries must be carried during each 6 months of basic and specialty training. Refractions should also be recorded. 30 cases are required in order to achieve CCTO.

C6. Audit.

Assessment of Audit reviews a trainee's competence in completing the audit cycle. Trainees should complete at least one audit during the core years and one audit during their STMO Training.

C7. 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 surgical 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.

Curriculuar Outcomes measured at the CAPA
WBAs.
School for Ophthalmic Specialists (SFSFO).
eLogbook.
Human Factors.
Attendance at Obligatory Courses.
Audit.
Examinations.
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 Program – 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 CCST.

EVALUATION AND QUALITY ASSURANCE OF THE CURRICULUM

D1. Training Governance Structure

D2. Supervision of Training

D.3 Evaluation of the Training Process

D.4 Inspection of Training Posts

D. EVALUATION AND QUALITY ASSURANCE OF THE OST CURRICULUM

Evaluation and Quality Assurance of the Curriculum

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.

D1. 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 OST Training Program 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.

D2. 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 OST 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 program 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 STMO Training programme meet the STMO curriculum requirements.
- Administering and chairing the six-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 (CT)

- 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 CT 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.

Quality Assurance of Training

D.3 Evaluation of the Training System and Training Program

- 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 (Appendix L).

The existing BST Training Program was inspected and approved by the European Board of Ophthalmologists in 2013. The EBO will be invited for a repeat inspection visit in 2016.

D.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 2014 based upon seven quality indicators. This was in turn based on the quality indicators developed by the JCST in the UK (Appendix M).

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: that all core trainees are required to learn. Key topics are *delivered* in a blended framework using a combination of methods – in-house teaching, interactive classroom, national postgraduate training program, 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 liason 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

   CTO Y1
   - Incision and curettage of meibomian cyst (DOPs).

   CTO Y2

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

CTO Y3

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

2. SFFSO: TED. Orbital cellulitis, lacrimal function, ptosis, 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. 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 epislceritis.
- 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 Acanthomeba 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 pharmokinetics 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] • Excision of conjunctival pterygia. [4]
- 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 CTO Y1
    - Management of microbial keratitis and corneal scraping for microbiological investigations (mini-CEX) / DOPs.

    CTO Y2
    - 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).

    CTO Y3
    - Management of Herpes Simplex Keratitis (mini-CEX).
    - Pharmacology of topical agents, antibiotics, preservatives (CBD).
2. SFSO: 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. eLogboook: Corneal scraping, excision of conjunctival pterygia, 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-morbities 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.
- Ectropia 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]
- Phacoemulsification. [1,2,4]
- YAG laser posterior capsulotomy. [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]
- 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

   CTO Y1

   - 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.
   - Modular Phacoemulsification (SSAOP – OSCAR 1 and OSCAR 2.).

   CTO Y2

   - Complete Phacoemulsification (SSAOP – OSCAR.).
   - Subtenons / peribulbar local anaesthetic (DOPs).
   - Pseudoexfoliation (mini-CEX).
   - Refraction (DOPs)

   CTO Y3

   - Complex Phacoemulsification (SSAOP – OSCAR.).
   - Myopia (mini-CEX).
   - YAG laser posterior capsulotomy (DOPs).

2. SFSFO: Biometry – algorithms, pre-operative and post-operative assessment of phacoemulsification surgery, intra-operative role of OVDs, technical surgical skills, decision making during surgery.
3. MRCSI: Refraction Certificate. Biometry – algorithms, pre-operative/post-operative assessment, PXF, risks and benefits of phacoemulsification surgery, post-operative endophthalmomitis / antibiotic regimens.
4. eLogbook: Phacoemulsification, 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 pharmokinetics 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

CTO Y1
- Gonioscopy & Calibration of Goldmann Applanation Tonometer (DOPs).

CTO Y2
- 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 uunderstanding of the physiology of white-on-white perimetry and monitor visual fields for progression, benefits and risk of medical and surgical treatment.

CTO Y3

- Acute angle closure (mini-CEX).
- YAG laser peripheral iridotomy (DOPs).

2. SFSO: 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, Pupillary 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. [1,2,3]
- 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, CHRYSTAL

Index core skills

To be competent to exit descriptor level 3

- 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 interprete B-scan ultrasonography-indications (vitreous haemorrhage, 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

   CTO Y1
   Posterior Vitreous Detachment (mini-CEX).
   Retinal Skills: T-mirror examination, indirect ophthalmoscopy/indentation/retinal drawing (DOPs).

   CTO Y2
   CRVO (mini-CEX).
   Pan-retinal laser photocoagulation (DOPs).

CTO Y3
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-vitreal 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 sideeffects of its treatment with steroids. [1,3]
- To diagnose eye movement abnormalities including supra- and infra-nuclear lesions, internuclear ophthalmolplegia, 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 Horners Syndrome (Cocaine 4% & Adrenaline 0.1%) and for Adies 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 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

   CTO Y1
   N/A

   CTO Y2
   Orthoptic examination including the cover test, the prism cover test, field of BSV and Hess charts. (DOPs)
   Optic Neuritis (mini-CEX)

   CTO Y3
   Temporal Arteritis (mini-CEX)
   Third Nerve Palsy (mini-CEX)
   Temporal Artery Biopsy (DOPs)

2. SFSO. 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: Temporal Artery Biopsy.

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 Ambylopia. Ophthalmol 2006.

To know to level 2

- Nystagmus, congential 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

   CTO Y1

   CTO Y2

   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).

   CTO Y3

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

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

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

4. eLogbook: Strabismus surgery.

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

   CTO Y1

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

   CTO Y2

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

   CTO Y3

   Blow-out fracture (CBD).

2. SFSO. Orbital wall 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

Overview

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

Specialty Training in Medical Ophthalmology

Syllabus

Overview

The syllabus for Specialty Training in Medical Ophthalmology comprises the following components

Key topics: that all STMO 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 specialty. 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: Viva Format with 4 stations.
5. EBOD
6. Audit.
7. CAPA appraisal.

Medical Retina for Specialty 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 ischameic 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- classsifcation, 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 reattachment 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 D).

2. **WBAs** (See appendix D 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 (5).

4. **ICO Medical Retina Assessment Panel:**
    - Format: Viva with 4/5 Stations: 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.**

Glaucoma for Specialty 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. [2,4,5]
- 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 and to understand the limits and benefits of visual field software analysis in the measurement of visual field progression. [1,2,4,5]
- To understand risk calculators in relation to ocular hypertens ion. [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 and secondary closed angle forms of glaucoma.

- To understand the pharmacology and pharmokinetics 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 program.

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 E).

2. **WBAs** (See appendix E schedule – 4 are summative).
    - Mini- CEX: 1. OHT 2. POAG/PXF 3. NTG 4. Angle closure.
    - DOPs 1. YAG PI 2. OCT performance and analysis
    - CBDs 1. ONH analysis. 2. VF progression.
3. **eLogbook**
    - Laser YAG PI (5)
    - Laser ALT (TBC)

4. **ICO Glaucoma Assessment Panel:**
    - Format: Viva with 4/5 Stations: 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.

Paediatric Ophthalmology for Specialty 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

- Concomitant strabismus, screening strategies, epicanthal anatomy, accommodative aspects, interpretations of orthoptic report, indications for surgery.
- Amblyopia, anisometropic, stimulus-deprivation, strabismic prevention and treatment using occlusions, patching and atropine.
- Incomitant strabismus, cranial nerve palsies including diabetic mononeuropathies, significance of painful third nerve palsy and of pupil sparing, prediction of post-operative diplopia.
- Ocular motility syndromes (Duane's, Brown's).
- Nystagmus, congential and acquired.
- Diagnosis management and treatment of paediatric lens abnormalities including congenital cataract, unilateral and bilateral, and prevention of amblyopia.
- Diagnosis management and treatment paediatric retinal disease.
- Diagnosis management and treatment of paediatric neuro-ophthalmology and knowledge of paediatric neurological diseases affecting vision.
- Ocular albinism.
- Diagnosis and management of accidental and non-accidental eye injury.
- The approach to infants, children and their parents and special needs.
- Ophthalmia neonatorum, diagnosis and management.
- Congenital nasolacrimal obstruction: recognition and management.
- Ametropia in children, significance and treatment.
- Orbital cellulitis presenting in children.
- The apparently blind infant, normal and delayed visual maturation, learning disabilities and role of visual electro-physiology.
- Liaison with pediatricians, geneticists.
- Essential Reading
    1. Cotter SA. Paediatric Eye Disease Investigator Group. Treatment of anisometropic ambylopia 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 treatmentof severe amblyopia in children. Ophthalmol 2003;110: 2075-87.
    4. Repka MX, Beck RWet al. A randomized trial of patching regimens for treatment of moderate amblyopia in children. Arch Ophthalmolo 2003;121:603-11.
    5. Schieman MM. Paediatric Eye Disease Investigator Group. A randomized trial of Treatment of ambylopia in children age 7 to 17 years. Arch Ophthalmol 2005:123:437-47.

To know to level 2

- Diagnosis management and treatment of paediatric uveitis and paediatric systemic disease with ocular involvement.

- 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

- 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 and 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, monitor progress of amblyopia treatment, evaluate the suitability of prisms as a corrective measure for the patient.
- Identifying and characterizing vertical strabismus, Duane's syndrome and Brown's syndrome.

Assessment tools throughout Paediatric Module

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

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

   Mini- CEX:
   1. Assessment of Visual Acuity in an infant.
   2. Concomitant Strabismus in a child
   3. Partially accommodative esotropia.

   DOPs
   1. Orthoptic examination in a child including the cover test, the prism cover test, field of BSV and Hess Chart interpretation.
   2. Cycloplegic Refraction in a child..

3. **eLogbook**
   - Paediatric refractions x 30.
   - Infantile EUA.

4. **ICO Paediatric Assessment Panel:**
   - Format: Viva with 4/5 Stations: 1. Esotropias, 2. Exotropias. 3. Amblyopia 4. Refraction and prescribing. 5. General.
5. **European Board of Ophthalmology Diploma (EBOD).**

6. **Audit.**

7. **Consultant Trainer Report.**

8. CAPA appraisal.

Appendix C

Human Factors Program (RCSI)

Introduction

It has been estimated that only 25% of the important events which occur during a surgical procedure are related to manual or technical skills and that 75% relate to human factors such as decision making, communication, team work and leadership (Kohn et al 1999). Other human factors which are important in medicine include selfawareness, conflict resolution and error management.

While some individuals seem to have these skills innately, many others can learn them in formal education and training programmes. Although it is unlikely that innate personality can be changed, it is undoubtedly possible to alter certain aspects of behaviour which can impact negatively on colleagues and on the team in the work place.

A programme of training in Human Factors and Patient Safety principles is a mandatory component of Surgical, Ophthalmology and Emergency Medicine training for trainees at junior and senior levels of training. The programme is assessed at the end of each academic year. An academic degree in the form of the MSc/Postgraduate Diploma in Human Factors and Patient Safety is also available. In addition, non-consultant-hospital doctors currently not on training programmes have access to a Personal and Professional Development programme in Human Factors and Patient Safety.

Training and Assessment Methodology

Training sessions use a combination of didactic and action-based learning teaching methods and classes are kept to a maximum of 25 attendees to allow for simulation and practice. Emergency Medicine, Opthalmology and Surgical trainees attend sessions together which stimulates multidisciplinary communication. Sessions are facilitated by a Clinical Psychologist/Senior Lecturer and either a Consultant in Surgery, Opthalmology or Emergency Medicine. Each trainee attends three full day sessions per year of training. Objective Structured Clinical Examinations (OSCE) are held at the end of each year. Marks for attendance and OSCE marks are significant components of the annual assessment necessary to permit progression through the training programme and in fulfillment of the requirements for the Certificate of Completion of Basic Surgical Training (CCBST).

MSc/PostGraduate Diploma in Human Factors and Patient Safety

All trainees enrolled in a surgical or an emergency medicine training programme are eligible to apply to study for a Postgraduate Diploma in Human Factors and Patient Safety. This programme runs concurrently with the Human Factors and Patient Safety training programme. Credits for the satisfactory completion of four research assignments are combined with credits received for attendance and performance at the OSCEs leading to the award of the Postgraduate Diploma. Trainees may then opt to upgrade this award to an MSc by research. Further details can be found on the RCSI website, National Surgical Training Centre http://www.rcsi.ie/surgery_nstc

Personal and Professional Development Programme

Non-consultant hospital doctors who are employed in surgical and emergency medicine posts with the Health Services Executive (HSE) are eligible to attend professional development workshops on topics related to Human Factors and Patient Safety. For more details, please consult www.schoolforsurgeons.com.

Core Surgical and Emergency Medicine training Curriculum Outline

YEAR ONE

1. **Error and safety in hospital practice – Introduction to the human factors approach to human performance and application to healthcare delivery.**
2. **Talking to patients and relatives – Strategies for effective communication and managing challenging situations**
3. **Crisis management – Principles of crisis management and hospital emergency plans**

YEAR TWO

1. **Teamwork – Introduction to effective team working**
2. **Conflict resolution – The skills of good negotiation with colleagues**
3. **Decision-making and disclosure of error – Getting it right and what to do when it goes wrong**

YEAR THREE

1. **Personality and behaviour – Medical malpractice in Ireland and the recognition of abnormal behaviours.**
2. **Emotional intelligence and stress management – The management of emotions and self-care**
3. **Leading teams – Individual differences and leading junior staff and team meetings**

Higher Surgical and Emergency Medicine training Curriculum Outline: Years One to Four*

- **Handover – Introduction to effective principles of effective handover**
- **Critical Incident Analysis – The role of the Specialist Registrar in an analysis of a critical incident in a hospital**
- **Crisis management simulation in the operating theatre – Multidisciplinary teamwork in a simulated medical environment (operating theatre/emergency department/ward)**
- **Working with Patients to change their Lifestyle – Introduction to Motivational Interviewing skills for use in challenging situations**
- **Dilemmas in surgery – Ethical problems in hospitals**
- **Presentation and interviewing skills – Presenting oneself at consultant interviews**
- **Breaking bad news and post-operative conversations – The art of disclosure**
- **Clinical care programmes in Ireland – Orientation to change programmes in healthcare delivery in Ireland**
- **Leadership 1-3 – What makes a good leader? Three full day workshops and 360° evaluation**

*These topics are under review and subject to change

References and related reading

Aspegren, K. (1999) BEME Guide No. 2: Teaching and learning communication skills in medicine-a review with quality grading of articles. *Medical Teacher* 21(6): 563-570.

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Cahan, MA., Larkin, AC., Wellman, S., Haley, H., Sullivan, K., Shah, S., Hirsh, M., Litwin, D., Quirk, M. (2010). A Human Factors Curriculum for Surgical Clerkship Students. *Archives of Surgery,* 145(12): 1151-1157.

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Gettman, M.T., Pereira, C.W., Lipsky, K., Wilson, T., Arnold, J., Leibovich, B.C., Karnes, R.J., Dong, Y. (2009). Use of High Fidelity Operating Room Simulation to Assess and Teach Communication, Teamwork and Laparoscopic Skills: Initial experience. *Journal of Urology,* 181: 1289-1296.

Kohn, L.T., Corrigan, J.M. (1999). *To Err is Human: Building a Safer Health System.* Institute of Medicine, Washington, D.C.

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Neily, J., Mills, P.D., Young Xu, Y., Carney, B.T., West, P., Berger, D.H., Mazzia, L.M., Paull, D.E., Bagian, J.P., (2010). Association Between Implementation of a Medical Team Training Program and Surgical Mortality. *Journal of the American Medical Association,*15:1693-1700.

Ziv, A., Ben-David, S., Ziv, M. (2005). Simulation Based Medical Education: an opportunity to learn from errors. *Medical Teacher,* 27, (3): 193-199.

Appendix D

Medical Retina Module

Timetable for core activities and WBAs

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic: ARMD (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 ARMD	**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		

Four WBAs will be summative.

* should be included as part of each mini-CEX

Appendix E

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 F
Pediatric Module
Timetable for core activities and WBAs

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Topic: Amblyopia	**Topic: Esodeviations**	**Topic: Refraction and Prescribing**	**Topic: Exodeviations**	**Topic: Retinal Diseases**	**Topic: TBC**
RCTs Paediatric Eye Disease Investigator Group	Relevant RCTs	Relevant RCTs	Relevant RCTs	Relevant RCTs	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	**Week 3** Mini-CEX	**Week 3** Mini-CEX	**Week 3** Mini-CEX	**Week 3** Mini-CEX	**Week 3** Mini-CEX
Week 4 DOPs Cycloplegic Refraction in a child	**Week 4** DOPs Orthoptic Examination in a child	**Week 4** DOPs Fundoscopy in an infant	**Week 4** DOPs Orthoptic Examination in an infant	**Week 4** DOPs Visual assessment in an infant	**Week 4** DOPs Cycloplegic Refraction in an infant
Strabismus Course	Refraction Course		Host IC/SFS		

Four WBAs will be summative.

Appendix G Role of Community Ophthalmic Physicians

The Community Ophthalmic Physician is involved in the ophthalmic diagnosis and treatment of:

(a) Pre-school children.

(b) Those children referred by a school medical service.

(c) Providing various ophthalmic services to eligible patients involving the management of all eye conditions not requiring major surgical intervention and in many cases the post-operative management of surgical cases. The normal referral rate for ophthalmic cases for surgery is in the order of less than 5%.

(d) In co-operation and consultation with other hospital consultants, the Community Ophthalmic Physician isconsulted in the overall management of a patient with complex systemic disorders. The Community Ophthalmic Physician will, in consultation and co-operation with a patient's general practitioner, manage the ophthalmic aspect of the patient's disorder.

(e) Community Ophthalmic Physicians directly manage the ophthalmic services in the HSE Area in which they work. They supervise waiting lists and prioritise patients. They manage budgets, prepare service plans, prepare statistical reports and liaise with other heads of discipline, to deliver a multidisciplinary service to client groups.

Appendix H Compulsory and Recommended Courses and Meetings

Compulsory Courses for Core Training in Ophthalmology
Irish College of Ophthalmologists National Courses
Neuro-ophthalmology Course – Miss Patricia Logan, Beaumont Hospital
Strabismus Course – Waterford Regional Hospital
Refraction Course
Phaco bootcamp Course

Compulsory Courses for Specialist Training in Medical Ophthalmology
Neuro-ophthalmology Course – Miss Patricia Logan, Beaumont Hospital
Strabismus Course – Waterford Regional Hospital
Glaucoma Study Day – RVEEH, Dublin
Medical Retina – Miss Marie Hickey-Dwyer Limerick
Irish College of Ophthalmologists Annual Meeting (May)

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

Ocular Trauma / Emergency Ophthalmology Course

International Meetings

International Paediatric Meeting, Dublin – *Prof Michael O Keefe, Mater & Temple St Hospitals*
International Refractive Meeting, Dublin – *Prof Michael O Keefe, 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)

APPENDIX I Criteria for Certificate of Completion of Core Training CCCT

On successful completion of Core 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 CTO Y1, CTO Y2 and CTO Y3
2. Satisfactory CAPA appraisals for each 6 months of the first 3 core 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. Refraction cases x 30

APPENDIX J Selection Criteria for entry into Specialist Training in Medical Ophthalmology

1. Successful completion of CTO Y1, CTO Y2 and CTO Y3
2. Satisfactory CAPA appraisals for each 6 months of the first 3 core 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 K
Exit Criteria for the Award of CCST

On completion of Specialist Training in Medical Ophthalmology trainees may apply for the Certificate of Completion of Specialist Training. The CCST 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 3).
4. Practice Management Module.

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

1. Laser			
	YAG laser Capsulotomy	20	(10 + 10)
	YAG laser iridotomy	10	(5 + 5)
	Laser to retinal tear	10	(5 + 5)
	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	10	
	Excision of cyst and papilloma	20	
	Electrolysis and trichiasis	5	
(b) Lacrimal	S + P lacrimal ducts	20	
	Punctal plugs	12	
(c) Trauma	Lid and facial lacerations	5	
3. Retinal			
	Intravitreal Injections	300	(150 + 150)
	Subtenons injection LA	10	(10 + 0)
	Subtenons injection (steroid)	5	(0 + 5)
4. Clinical Cases Logbook			
	Glaucoma	5	(1 + 4)
	Medical Retina	5	(2+ 3)
	Paediatrics	5	(1 + 4)
5. Refraction cases:			
	Adult and pediatric refractions	60	(30 +30)
5. Audit			

Appendix L

Quality Indicators and standards for Core Training in Ophthalmology Y1-3: Requirements (Q1 & Q2) and Recommendations (Q3, Q4, Q5, Q6 & Q7):

QUALITY INDICATOR

1. **Timetable**

   Trainees in Core Training in Ophthalmology must have a timetable compliant with the below standard:

   Theatre session x 2 (minimum of one protected)
   Casualty: x 2 sessions (3 is allowed but not recommended) General clinics: x 3 sessions
   RSTA: x 1 session
   Other x 1: may include laser session, special clinic, or PAC provided it is supervised by consultant

2. **Surgical Experience**

   Trainees in Core Training in Ophthalmology* must be given the training opportunities to perform the below **minimum** standard of completed cases by year 1, 2 and 3

CTO	YR 1		YR 2 (total: includes yr 1)		YR 3 (total: includes yr 1 and 2)
Phaco	M= 20	C= 2	M= 40	C= 20	C= 50
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**

   Trainees in Core Training in 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.

4. **Quality of Training and Supervision**

   Trainees in Core Training in Ophthalmology Training should have the opportunity to be adequately supervised in clinic, in theatre and on-call, with rotational learning agreements, protected theatre 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.

5. **Assessment/Feedback**

   Trainees in Core Training in 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).

6. **Audit**

   Trainees in Core Training in Ophthalmology should have the opportunity and study time to complete and present one audit project every 12 months.

7. **Facilities**

   Trainees in Core Training in Ophthalmology should have easy access to educational facilities, including library and IT resources, for personal study, audit and research.

*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.

Appendix M
Guidelines to Training Performance Management

The training programme recognises that during the HST programme trainees may underperform and not achieve the desired performance requirements of the curriculum. There may be a multitude of reasons for this underperformance. The training programme provides support to all trainees so that they can maximise their development and career progression throughout training.

The support escalations are outlined below:

- Consultant Trainer.
- Unit Educational Supervisor.
- The Dean of Postgraduate Surgical Education or Programme Director (PD) for the specialty.

All trainees are encouraged to use the above contacts during their time on the programme should they encounter any problems or wish to seek career advice.

Trainees who are identified as performing below the standard appropriate to their stage of training will be required to undergo additional formal assessment. The specific competencies underlying the sub-optimum performance require identification, in additional to an examination of the trainee holistically. Following further assessment and evaluation appropriate training, assessment and other supports as deemed necessary will be put in place and form part of a learning support or remediation plan for the trainee. Documentation of this process must be clearly communicated and agreed by trainee, trainers, the Dean and / or the PD.

In order to implement the above processes the following will occur:

A1. Scheduled meeting between trainee, the consultant trainers and Dean and / or PD:
A meeting will take place between the relevant parties (the trainee, the consultant trainers and the Dean and / or PD). The goal of the meeting is to identify where performance has been sub-optimal, the competencies involved and explore underlying reasons for underperformance.

A2. Identification of competencies:
The specific technical, clinical or professional competencies underpinning the suboptimum performance will be identified. These will be clearly recognised and communicated both verbally and in writing to the trainee, the consultant trainers, the Dean and the PD.

A3. Assessment plan:
A plan to assess the relevant competences will be put in place. An appropriate assessment, in the form of workplace based assessments, will be completed by more than one trainer. The number, type ad timing of the WBAs will be clearly communicated to the trainee, trainers, the Dean and PD. Clear goals regarding progress, relevant performance standard and timeline in which to demonstrate same must be identified and aligned with curricular outcomes.

B. Review of progress:
A further review meeting to assess progress will be scheduled. The timing of same should be clearly communicated and agreed with trainee, trainers, the Dean and PD.

C. Further evaluation of the underperforming trainee:
Trainees who are identified as performing below the standard required may be requested to undergo further evaluation with additional assessments or appraisals. These assessments may be outside of those areas identified as suboptimum in order to develop a holistic view of the trainee's practice and in order to develop a meaningful

feedback plan to support training. The results of these assessments will inform if additional supports need to be put in place.

This process (A- E) will be repeated until the competencies in question have been acquired to the relevant standard within an agreed timeline. If the agreed goals of remediation are not met, further steps to support the trainee may need to be taken.

This will be communicated to the trainee and the trainers, Dean and PD.