



REFRACTION CERTIFICATE SHORT LIFE WORKING GROUP INITIAL REPORT

3 JUNE 2025

INTRODUCTION

The Refraction Certificate Working Group (RCWG) was set up at the request of the Royal College of Ophthalmologists (RCOphth) Examinations and Training Committees to form an initial view on reviewing the assessment of refractive skills in the training of all ophthalmologists. All key stakeholder groups are represented on the working group (Annex 1). The RCWG was chaired by Mr William Allum FRCS and met three times to develop this Initial Report and an Action Plan to submit to the GMC on 30 June 2025.

The terms of reference are to:

1. consider options for the assessment of the refraction skills of UK resident doctors
2. explore the implications of each option
3. agree the option to be put forward in the form of a report to the Examinations Committee and the Training Committee

BACKGROUND

The understanding and clinical assessment of refraction skills are core competencies for the RCOphth CCT. All ophthalmologists need to understand the findings of the clinical assessment of refraction even if they have not carried it out themselves. Ophthalmologists and optometrists both have the technical skills to carry out and assess refraction. The Ophthalmology curriculum, which was approved by the GMC and

implemented in August 2024, specifies the skills needed to demonstrate competence in refraction (Annex 2). That competence is currently assessed by an objective assessment, the Refraction Certificate (RC), which is a defined examination (OSCE) that has to be passed by the end of ST3 and is a requirement for entry to Level 3 of the training programme. Optics and refraction knowledge are tested in Part 1 FRCOphth and the RC assesses the practical skills and knowledge needed to understand and use these skills (although the RC can be taken before Part 1 FRCOphth). Discussions during the preparation of the new curriculum with the GMC highlighted issues with regard to the assessment of refractive skills and resident doctors have also made representations about the necessity for the RC in the Programme of Assessment. This short-life working group has been established to review the options for assessment and to recommend a robust plan that has support from all stakeholders, and that will provide the evidence base for any future change.

REFRACTION

Competence in refraction requires knowledge of the relevant clinical features and the acquisition of skills to perform the examination. Both are learned in the workplace with exposure to refraction in the early years of training. Exposure in the early phase to this core competence is important because of the differing clinical experience early years resident doctors may have. All resident doctors need training in refraction as it is necessary to have this skill within the emergency setting. This competence reflects multiple domains including knowledge and practical skill, as well as the ability to interpret findings so that the ophthalmologist can manage complex problems. The competence also covers appropriate approaches for professional advice, communication with patients and safe prescribing practices. Evidence of the acquisition of competence in refraction is provided by the RC such that all are able to make the assessment of common conditions in general ophthalmic practice such as cataract and in paediatric practice. Although the current curriculum requires all resident doctors to gain the RC many consultants will not need this level of knowledge and skills in their subsequent area of practice. There are however special interest areas (SIAs) that do not require the ability to undertake refraction examination.

Resident doctors who have previously registered with the General Optical Council as optometrists are exempt from the RC. The RC is a requirement in the Ophthalmology Specialty Training (OST) Programme of Assessment for those wishing to join the GMC Specialist Register. The ability to assess refraction is consistent with overseas ophthalmology practice, although the UK is an outlier in requiring an OSCE examination. The RC is offered as a standalone examination for optometrists worldwide who are not intending to complete the whole FRCOphth and is a popular part of the examination where examinations are run outside the UK.

ASSESSMENT

The current assessment of refraction is by an OSCE. The RC is a summative assessment that has 10 stations designed to test knowledge and skills. There is an established robust quality assurance process that includes specific training for examiners with appropriate standard setting as well as psychometric analysis of the examiner outcomes. The RC has to be passed by the end of ST3 in order to progress in the Programme of Assessment. It is associated with a high pass rate but those who are unsuccessful have to resit and must have achieved it by the time they take the Part 2 FRCOphth examination. Any examination failure may affect progression but in the last five years no resident doctors have required an extension of training due to the RC as determined during the ARCP process. Investigation is ongoing as to the number of residents who have had to resit the RC in the last five years. The RC costs £875, a cost that is incurred for each entry to the examination.

OPTIONS FOR ASSESSMENT OF REFRACTION

The RCWG has considered three options for the assessment of refraction skills.

1. **OSCE for all residents:** The existing OSCE is the assessment method within the approved curriculum. The infrastructure and resources, particularly examiner time, ensure an efficient and quality assured process. It is undertaken on a separate occasion to other parts of FRCOphth. Inclusion of the assessment within other parts of the examination is a possibility but would add significantly to the necessary resource for each diet of the examination because of the availability of examiners and the time available to conduct the examination. The current timing of sitting the RC is defined within the 2024 curriculum and although timing of taking the examination at any time during training could be considered this does not really address the main issue. In view of the recent introduction of the new curriculum any additional change is considered counterproductive as this would require an application for curriculum change to the GMC.
2. **WBA for all residents:** Undertaking the assessment in the workplace (WBA) has attractions as it would be analogous to the assessment of the acquisition of other practical skills with logbook evidence of skill development, under differing levels of supervision with final sign off. This approach could be both formative and summative but there would need to be clear evidence to ensure the same quality of assessment of the skill acquisition as demonstrated in the existing OSCE. It is estimated that most resident doctors would take three months to gain refractive competencies in the workplace - but there are regional and

country-wide variations in what is possible. There is already a summative WBA for refraction that needs to be signed off as part of the Level 2 EPA (CRSRet). Introducing additional WBAs would require trainer time and may be considered a significant extra undertaking for already overstretched clinical supervisors. There is also the option of the assessment being undertaken by optometrists. In their training the student optometrist is assessed by two WBAs and a formal OSCE which is overseen by a College of Optometrists assessor. This ensures quality assurance but there is a very limited pool of assessors so there is no spare capacity for optometrists in some areas of the UK to do WBAs for ophthalmology resident doctors. In addition external assessors would also incur a cost that the resident doctor most likely would have to fund, which would impact any cost savings.

3. **Hybrid Option:** In this approach a summative test of refraction knowledge within the FRCOphth would be combined with the assessment of practical refraction skills by a WBA such as an EPA. Refraction skills would be assessed in the workplace using procedure-based assessments with sign-off of an EPA. This hybrid approach would ensure that all can competently interpret the findings and implications for patient management from a refraction report and that those who undertake refraction testing can be assessed as competent in the workplace. This approach has a number of implications including logistics in the workplace, quality assurance of the WBA and an effect on formal examinations that need to be assessed in detail in a pilot.

THE FUTURE

The current curriculum describes the knowledge and skills for general ophthalmic practice. Although the population needs those with general skills for the majority of conditions, there are also well-defined SIAs. The development of more focused training for these areas would require different curricula and as such the assessment of more general skills could be redundant. Consideration could therefore be given to differentiation of special interest practice with acquisition of the specific competencies for those areas. Advances in education practice such as with artificial intelligence are likely to change the knowledge base as well as the skill set. Future changes to national optometry training may also have an impact on the RC. It is therefore recommended that there should be an analysis of likely developments that would need to be incorporated in future curricula. An option appraisal should be considered to evaluate a process of assessment that reflects the necessary skill set to meet population needs and these should be clearly defined in specialist job descriptions.

SUMMARY

1. The RC is currently required to complete the OST training programme and is a highly regarded and robust RCOphth examination.
2. There is potential to move to a WBA-based or hybrid approach but only if supported by the robust evidence base of a pilot. Until that time the RC should continue to be completed by the end of ST3.
3. There should be investigation of a differential approach to the assessment of the RC to reflect SIAs where the skills of refraction are not likely to be used in consultant practice.

APPENDIX 1 MEMBERS OF THE RCWG

- Bill Allum FRCS – Independent Chair
- Vikas Chadha – Chair Curriculum Sub-Committee
- Luke Clifford - Senior Examiner Refraction Certificate
- Dylan Costello – Director, Examinations Department
- Sophie Donovan – Examinations manager
- Mohamed Elalfy – Senior Examiner Part 2 Examination
- Adonis El-Salloukh – OTG Chair
- Claire Lane – Optometrist
- Sarah Maling – Chair Training Committee
- Niro Narendran – Curriculum Sub-Committee
- Saddam Shaheen - Lay rep
- Alex Tytko – Director, Education, Training & Events Department
- Christopher Way – OTG rep

APPENDIX 2 REFRACTION IN CURRICULUM 2024

1. TRAINING PROGRAMME



2. SYLLABUS

CS Cataract Surgery

PO Paediatric Ophthalmology

Level	Learning outcome	Descriptor
1 ALL	Independently perform a patient assessment and investigations sufficient to identify, describe and interpret clinical findings to arrive at differential diagnoses	Understand and interpret an optometric examination, including the assessment of vision and binocular vision. Interpret the refraction result.
		<i>PO specific</i> Understand when refraction is indicated, how it is performed and recorded. Become familiar with practice of retinoscopy and perform retinoscopy to understand this.
2 ALL	Independently manage patients at an appropriate work rate	Perform refraction and understand the relevance and importance of the refraction.
		Assess a patient's spectacles using neutralisation techniques and focimetry.
		Assess a patient's binocular co-operation and assess whether optical correction for this is necessary.
		<i>PO specific</i> Perform a cycloplegic refraction and understand the relevance and importance of the refraction.
3 CS	Independently assess and manage moderate complexity patients, demonstrating an understanding of cataract procedures and selecting the most appropriate treatment	Understand and apply knowledge of medicine and surgery relevant to cataract and refractive practice, to make diagnoses and recommend a management plan.
		Involve the patient, and where appropriate, their carer, partner or relatives, in the choices about their care and

	according to current accepted practice	enable them to express their informed consent, including about refractive outcome.
		Understand and apply knowledge of clinical genetics relevant to cataract and refractive conditions
3 PO	Independently assess and manage moderate complexity patients, demonstrating an understanding of procedures for paediatric conditions selecting the most appropriate treatment according to current accepted practice	Have a good knowledge of the complexities of prescribing glasses in children – including those with hypoaccommodation – and prescribe as appropriate from a cycloplegic and subjective refraction.
	Independently perform low complexity extraocular paediatric procedures.	Perform and record the findings of an examination under anaesthetic on a child, including refraction.

3. CURRENT WORKPLACE BASED ASSESSMENT

The CRSret is one of the mandatory assessments in the Level 2 EPA that must be signed off before advancement to Level 3 and is reproduced below.

RCOphth Supervised Learning Event Clinical Rating Scale CRSret (Cycloplegic Refraction)

All trainees must be able to perform an accurate cycloplegic refraction (especially on a child) and provide an appropriate prescription.

Trainee name:	Click or tap here to enter text.
Trainee GMC number:	Click or tap here to enter text.
Training year:	Choose an item.
Assessor name:	Click or tap here to enter text.
Assessor status:	Choose an item.
Assessor status – if Other, please specify:	Click or tap here to enter text.
Date:	Click or tap to enter a date.

Brief description of case	Click or tap here to enter text.
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Please grade the following areas using the scale below.

Attitude and manner
V good trainees introduce themselves and establish the name of the child and any other attendant (e.g. parent, carer). They explain the purpose of the test and how it will be carried out. They interact with the child using language and gestures appropriate for the child's age. They are sympathetic to any distress felt by the child or carer and offer ongoing encouragement and praise throughout the examination. They display good judgement regarding the limitations of the assessment and pursuit of clinical signs.

Poor trainees neither introduce themselves nor identify the patient. They are insensitive to distress felt by the child and their carer. Their demeanour is often inappropriate for the child's age and they make little attempt to interact with the child. They offer little or no encouragement. They needlessly prolong the examination to no benefit.

Topic	Please choose major concerns, minor concerns or meets expectations from the drop-down list
Introduction and explanation of examination	Choose an item.
Rapport with child/carers, empathy and sensitivity to age and context	Choose an item.
Respect for child/carers	Choose an item.

Retinoscopy

V good trainees carry out an examination in an appropriate environment and allow adequate time for full cycloplegia. They carry out an accurate retinoscopy at a suitable working distance. Use of lenses and frames is tidy and efficient. Their examination is fluent where possible and appropriate opportunities are maximised when cooperation is suboptimal. Accurate notation of retinoscopy, using power crosses and indication of working distances, is used. An appropriate prescription is then calculated with an understanding of adjustments made in relation to the clinical case.

Poor trainees position the patient or themselves poorly. They do not allow adequate time for cycloplegia. They do not attend to the room environment (patient comfort, lighting etc). Retinoscopy is chaotic with untidy use of lenses and other equipment. Notation of findings is unclear or ambiguous. They do not understand the importance of adjusting the final prescription.

Topic	Please choose major concerns, minor concerns or meets expectations from the drop-down list
Patient positioning/room setup	Choose an item.
Appropriate cycloplegia	Choose an item.
Use of trial frame/lenses	Choose an item.
Time taken/flow of examination	Choose an item.
Accuracy of retinoscopy	Choose an item.
Notation of retinoscopy/working distance	Choose an item.
Appropriate prescription issued	Choose an item.

Please use the boxes below for free-text comments and recommendations for further training.

Please note any aspects which were especially good Click or tap here to enter text.	Please note any suggestions for improvement and action points
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	Click or tap here to enter text.
Agreed action plan Click or tap here to enter text.	

This form should now be linked to the appropriate EPA.

Signature of assessor:

Signature of trainee: